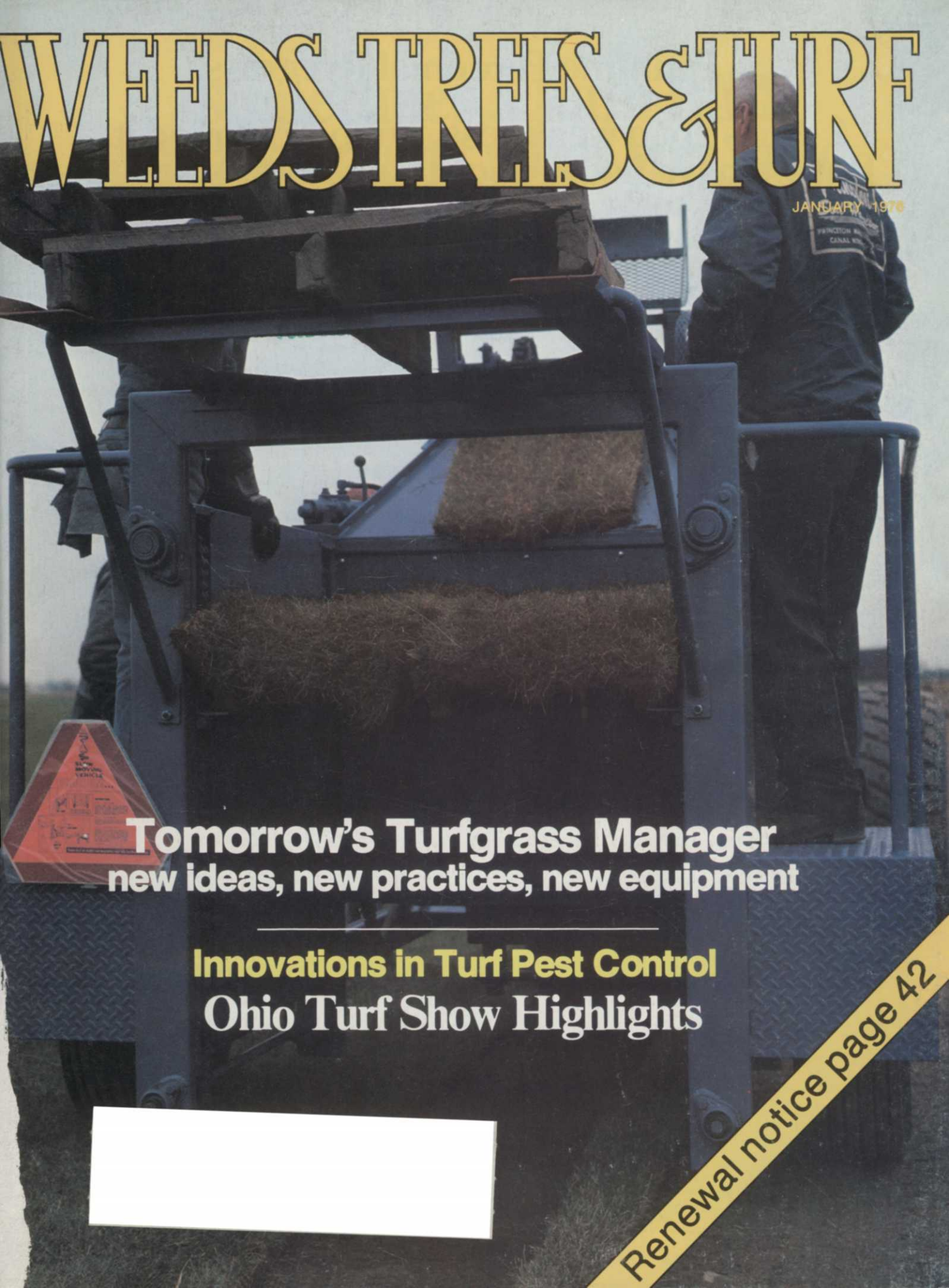
WEEDS TREES & TURF

JANUARY 1970



Tomorrow's Turfgrass Manager
new ideas, new practices, new equipment

Innovations in Turf Pest Control

Ohio Turf Show Highlights

Renewal notice page 42

Pennfine Perennial Ryegrass.

If it's got a weakness, nobody's found it. But we have heard about some new strengths.

The Pennfine story gets better as it goes along.

Four years ago, the agronomists at Pennsylvania State University finished their work on Pennfine. And the professional turf community put this remarkable fine-leafed perennial ryegrass to work on golf courses, athletic fields, sod farms, parks, cemeteries and public grounds across the country.

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Now, after thousands of grounds maintenance pros have used Pennfine, nobody's reported a real weakness. All the characteristics the Penn State agronomists selected for—unsurpassed mowability, excellent disease resistance, exceptional decumbency, persistence under diverse management conditions, fine texture and compatibility with Kentucky Bluegrass — have proven out in the real world. That's the ultimate test.

Dr. Joe Duich of Penn State inspecting a new application for Pennfine: Independence National Historical Park, Philadelphia.

In fact, Pennfine has performed even better in some areas than anticipated. It's proven to be more tolerant to both shade and heat. It's shown excellent rust resistance on the West Coast. And, although Pennfine showed good to excellent disease tolerance in university trials, its disease tolerance appears to be even stronger in actual use.

Pennfine production fields in the Pacific Northwest where a major effort is underway to meet growing demand for seed.

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From the very beginning, there's been only one problem with Pennfine: not enough seed to meet demand. And that problem is just about solved with substantially increased production. We can't make you a flat promise. But, if you order fairly soon, you should be able to get Pennfine seed in the quantity you want.

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WTT-1

☐ Let me know how I can order Pennfine Perennial Ryegrass.

☐ I'm still not convinced. Send me a Pennfine Test Kit.

Pennfine PERENNIAL RYEGRASS

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Title_____

Club or Company_____

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Please Note: The test kit offer is restricted to turf professionals, people whose livelihood depends on the establishment and maintenance of quality turf.

Mail to: Pennfine Perennial Ryegrass, P.O. Box 923, Minneapolis, Mn 55440.

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To find out what our new Trickle Irrigation Systems can do for you, call your Rain Bird distributor or write Rain Bird, 7045 North Grand Avenue, Glendora, CA 91740.

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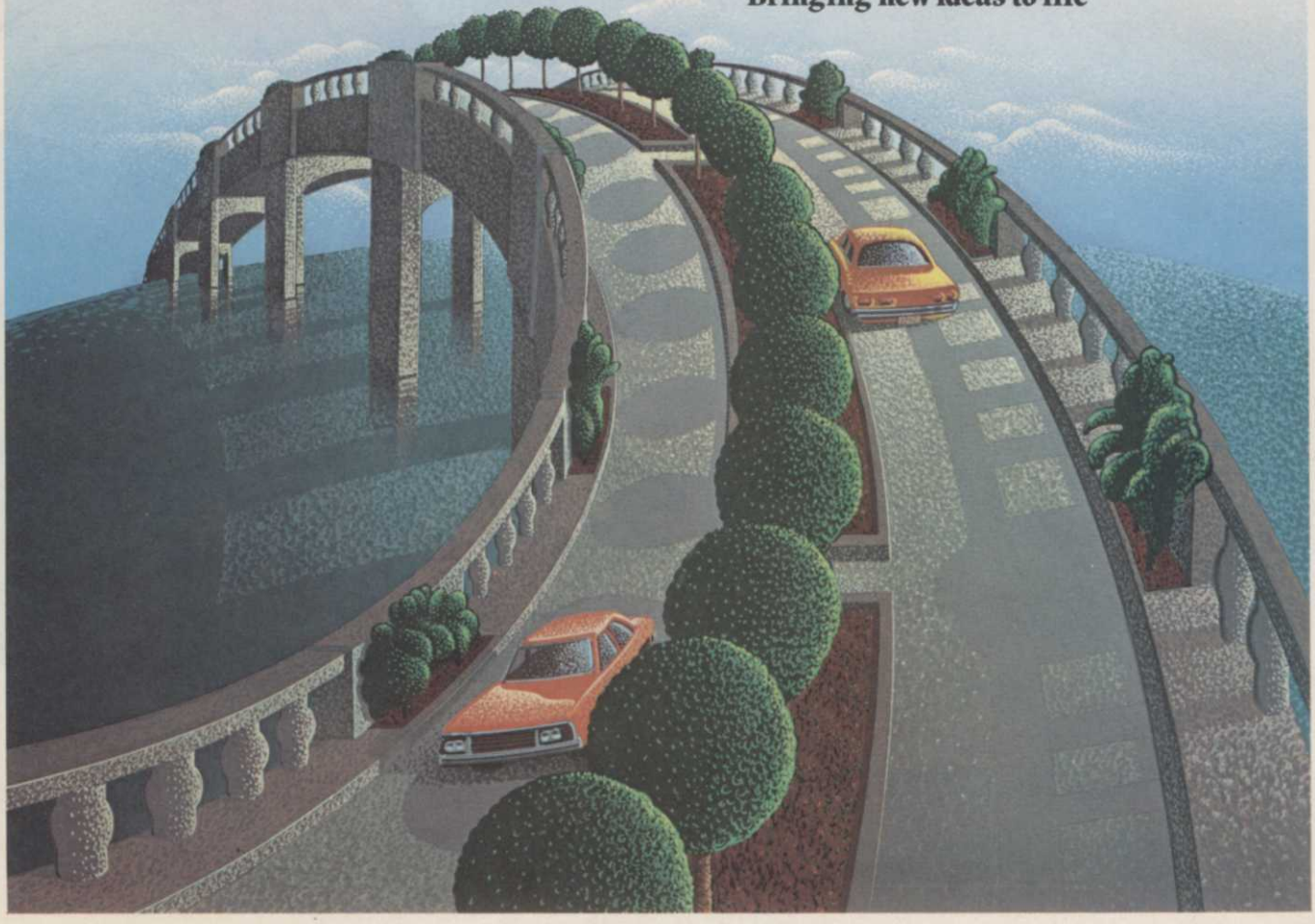

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the chance out of your job.

Its versatility also lets you cut down on the need for a large chemical inventory. Why use an array of different brands with different instructions, if you can do the job effectively with a single product? You'll enjoy less nozzle changing, chemical switching and tank flushing. All good reasons to rely on dependable SEVIN.

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And SEVIN is compatible with many commonly used fungicides, miticides and other insecticides.

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And, when compared with many other insecticides, SEVIN ranks low in toxicity to people, animals, birds and fish.

PLANTS	INSECTS CONTROLLED
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SHRUBS, TREES AND WOODY PLANTS ash arborvitae, azalea, barberry, beech, birch, boxwood, catalpa, cedar, cypress, dogwood, elm, euonymus, ginkgo, hackberry, hawthorn, holly, honeysuckle, hydrangea, juniper, lilac, magnolia, maple, oak, pine, redbud, rose, tulip-tree, etc.	apple aphid, bagworm, birch leaf miner, boxelder bug, boxwood leaf miner, cankerworms, catalpa sphinx, Cooley, Eastern spruce gall aphid, elm leaf aphid, elm leaf beetle, elm spanworm, eriophyid mites, gypsy moth, Japanese beetle, June beetle, lace bugs, leafhopper, leafroller, mealy bug, oak leaf miner, orange tortrix, periodical cicada, pine sawfly, puss caterpillar, plant bug, rose aphid, roseslug, scale, spruce gall aphid.
LAWNS, TURF	ants, chinch bugs, cutworms, earwigs, fall armyworm, fleas, leafhoppers, millipedes, mosquitoes, sod webworms (lawn moths).

NOTE: SEVIN will injure Boston Ivy, Virginia Creeper, and Maidenhair fern.

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Then ask your chemicals supplier about SEVIN – the insecticide with over 18 years' experience in effective pest control.

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WEEDS TREES & TURF®

January 1976, Vol. 15, No. 1

16 TURF PEST CONTROL — EPA has created some rules and regulations concerning the use of specific chemicals that are being questioned by many Green Industry experts. Clemson University entomologist D. K. Pollet reviews the effects of EPA action on the turfgrass manager and his use of pest controlling chemicals.

22 Big Business In Ohio — Here's a report on December's Ohio Turfgrass Conference and Show. It was the largest and possibly the best showing ever for the Ohio Turfgrass Foundation as some 1,170 persons registered for the event.

26 Future Superintendent — The modern turfgrass manager faces a technical revolution. Turfgrass culture is becoming less of an art and more of a science as equipment becomes more sophisticated and chemicals more specific. J. D. Butler, associate professor, Colorado State University, takes a philosophical approach to the future and makes some interesting predictions.

36 Industry News — Stately Elm Returns. . . . Suggested Buying and Selling Standards for Nurseries . . . ."Bad Green Syndrome". . . . GCSAA Preview. . . . Pine Needle Scale Control. . . . Japanese Beetle Parasite Discovered in Northeast.

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THE COVER — 1976 isn't the only thing new this time of year. Many new products are being tested in preparation for marketing like this new tow-behind sod harvester.

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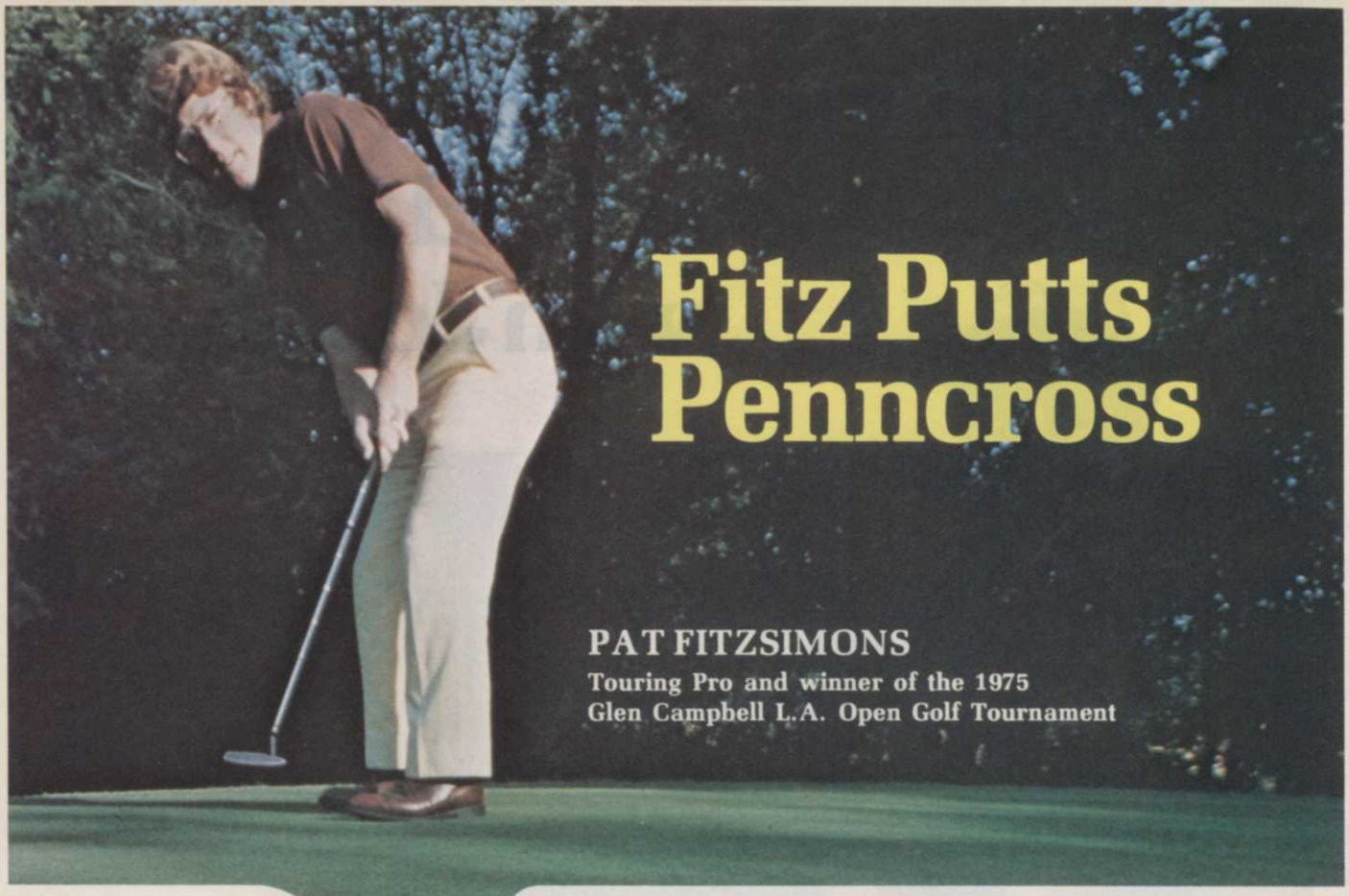

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Superintendent
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Since then Fylking has established records making it the perfect choice for the official grass at the environmental World's Fair, Expo '74.

Fylking has proven to have superior resistance to disease and drought; withstands traffic. Its thickly woven rhizome root system develops dense sod so quickly Fylking can be lifted in 90 days. Fylking can be mowed at 3/4 inch (even 1/2 inch) and thrive. It absorbs carbon dioxide pollutants, gives off oxygen, cools air by releasing water vapor.

A superior mixer, Fylking greens up earlier in spring, stays greener in summer heat, remains green longer into fall.

Choose Fylking and your customers are getting a grass good enough for a World's Fair!

0217

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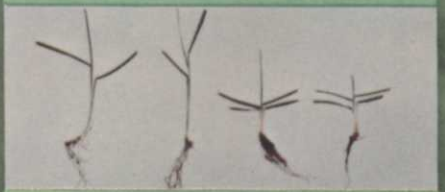
U. S. Plant Patent 2887

Another fine product of Jacklin Seed Company

Fylking's rhizome root system develops so thickly, under ideal conditions sod can be lifted in 90 DAYS.



Low growth, short leaf sheaths and abundant tillering of Fylking (right) compared with another elite bluegrass plant.

Cross section displays thick, luxuriant turf, fine leaf texture and brilliant green color of Fylking.

Editorial

In this industry, there is one unchangeable tradition: the annual International Turfgrass Conference and Show of the Golf Course Superintendents Association of America is always big. And for evidence to this fact, we quote the following from a report of the second conference held in Detroit in February 1928:

"About 350 greenkeepers were present throughout the week and the big auditorium of the Hotel Fort Shelby was crowded continuously during the convention sessions on Thursday and Friday." There were 27 exhibits at the 1928 show, and by 1929, at the Statler in Buffalo, this support had grown to 38 exhibits covering 10,000 square feet of convention floor.

Last year in New Orleans, 1,384 superintendents attended and some 150 exhibits covered 100,000 square feet of floor space in Rivergate exhibit hall. Attendance for a single day, including members, ladies, non-members, guests, one-day admissions and exhibitors hit a whopping 4,899. That's big.

Again this year the annual show promises to be a large success. It will be February 8-13, at the Auditorium and Convention Hall in Minneapolis, Minn.

We congratulate the GCSAA on its excellent program presentations and success with its convention and show through the years. We are a strong supporter of highlevel communication programs and any opportunity members of our industry have to exchange ideas. These are the foundations for progress and the GCSAA show has them in abundance.

Jack Quaill of Pittsburg, reporting on the 1936 convention, described these foundations well: "Where can you get such nationally known and prominent men together at one time to tell you of the problems and answers to modern golf course maintenance? Where can you get a bunch of greenkeepers together to discuss and exchange ideas with you on your particular problems?

The '76 show has quite a lineup. There will be 68 speakers at the educational sessions, including 23 university instructors, 29 member superintendents and 16 industry representatives. And the program . . . everything from dry spot to leadership. See page 37 for details. DDM

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Government News·Business

President Ford signed a law allocating $71.5 million through March 1977 to EPA for its pesticides program. The act also contains the following provisions:

Delay through October 21, 1977 the deadlines for full registration of pesticides and applicator certification.

Require EPA to notify USDA and the public 60 days in advance of taking actions affecting pesticides.

Prevent EPA from requiring private pesticide applicators to take a test before certifying themselves as competent to use the chemicals. States could require them to pass tests, however.

Provide that educational information on integrated pest control be provided through EPA state agencies and the Extension Service.

Require EPA to assess the impact on commodities prices and production, retail food prices and other segments of the agricultural economy in changing pesticide classifications or cancellations.

D. B. Smith Company, Utica, New York, consolidated three of its manufacturing operations into new headquarters in Chadwicks, N. Y.

EPA's proposed Pesticide Policy Advisory Committee (re. Nov. WTT) was put in writing after a number of groups and individuals testified at the House Committee on Agriculture's Oversight Hearings. They testified that EPA was not considering the impact on the agricultural community to a sufficient degree as regulations governing the use of pesticides were being drawn up. The function of Train's committee when formed will be:...'to advise, consult with, and make recommendations (to Train) on matters of policy relating to his activities and functions under FIFRA. The Committee provides practical and independent advice to the Agency on matters and policies relating to pesticides and maintains an awareness of developing issues and problems in the pesticides area. It reviews and advises (Train) on regulations and guidelines that are required by FIFRA; makes recommendations concerning necessary special studies; recommends policies with respect to the promulgation of pesticide standards and regulations; and assists in identifying emergency problems relating to the use and control of pesticides. It proposes actions to encourage cooperation and communication between the Agency and other Federal governmental agencies, State agencies, user groups, the chemical industry, the research community and the general public.'

Agricultural Laboratory of United States Testing Company, Inc., recently moved its headquarters. The new facility is especially designed for processing large volumes of soil, plant tissue samples and other related work.

Ransomes, Sims and Jefferies, Ipswich, England, appointed Pen-Gro Corp. as exclusive master distributor of its grass machinery and replacement parts in California, Nevada and Arizona.

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TURF PEST CONTROL

THERE ARE FOUR categories of insects and other related pests often found in turf, according to Clemson University entomologist Professor D. K. Pollet. The four categories are: soil inhabiting or root feeding, leaf and stem feeding, "juice sucking" and secondary insects and nuisances.

To control any insect pest positive identification is essential, Pollet told WEEDS, TREES & TURF. "Application of the correct material the proper way to control the pest is necessary to prevent injury to the turf," he said. There are also other problems in control of pests, he said, many of them relating to Washington.

"Turf pests, like other pests, occur year after year," he said. "Effective control is getting harder. The EPA rules and regulations concerning use of chemicals affect controlling measures used by the chemical industry, grounds maintenance workers, commercial applicators, universities and golf course superintendents."

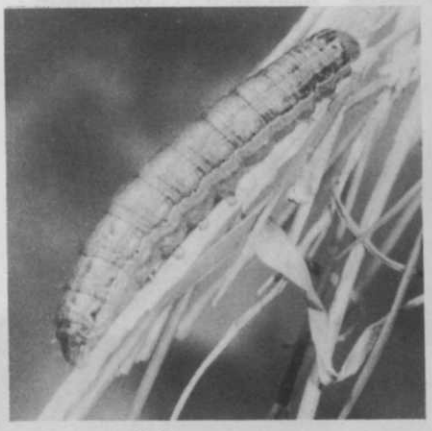
Pollet feels the EPA has made some rules and regulations concerning the use of chemicals about which there is considerable question. "They have created a situation where turf people have to use more toxic, more specific and more costly materials to control the same pests which were controlled with less toxic and less expensive materials only a few years ago.

"The EPA has taken upon itself to be judge, jury and arbitrator when it comes to determining whether a pesticide will be used or not," he said. "We have to sit up and take note and help to make the decisions more unbiased. It is necessary to be alert to what is happening and actively support a safe and effective program to help each other to assure that when pesticides are removed from the market, that they are justifiably removed."

Professor Pollet said soil infesting insects which feed on the roots include white grubs, wireworms, mole crickets and ground pearls.

The immature or larval stage of several species of beetles which include June beetles, Japanese beetles, green June beetles, the Asiatic gar-

(continued on page 20)



Fall armyworm

True armyworm

Green June beetle larva, also called white grub

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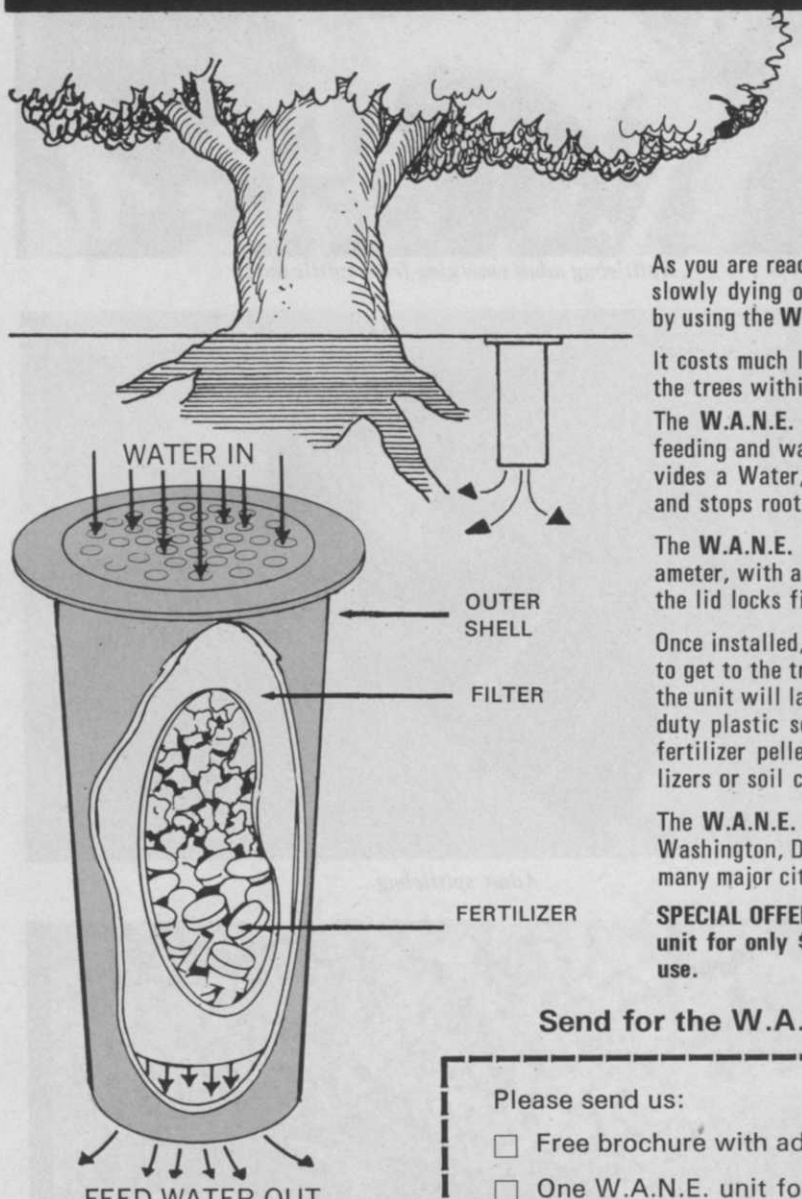

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TURF PEST CONTROL *(from page 16)*

den beetle and masked and rose chafers constitute the white grubs. "These C-shaped white larvae remain as little as 10 months or as long as three years in the soil," he said. "They burrow in the soil around the roots and feed there about an inch or two below the soil surface. Irregular brown patches in the turf, presence of moles and large numbers of birds feeding in the sod are good indications of an infestation of grubs."

Wireworms are primarily yellowish to dark brown, smooth and slender. They bore into the underground parts of the stems and feed on roots causing the grass to wither and die. Mole crickets are light brown in color and are adapted for digging. The stout and shovel-like forelegs allow them to dig rapidly. Beside feeding on the roots, their injury is twofold — burrowing of the soil uproots seedlings and the soil dries out faster. A single cricket can damage several yards of newly seeded lawn in a single night.

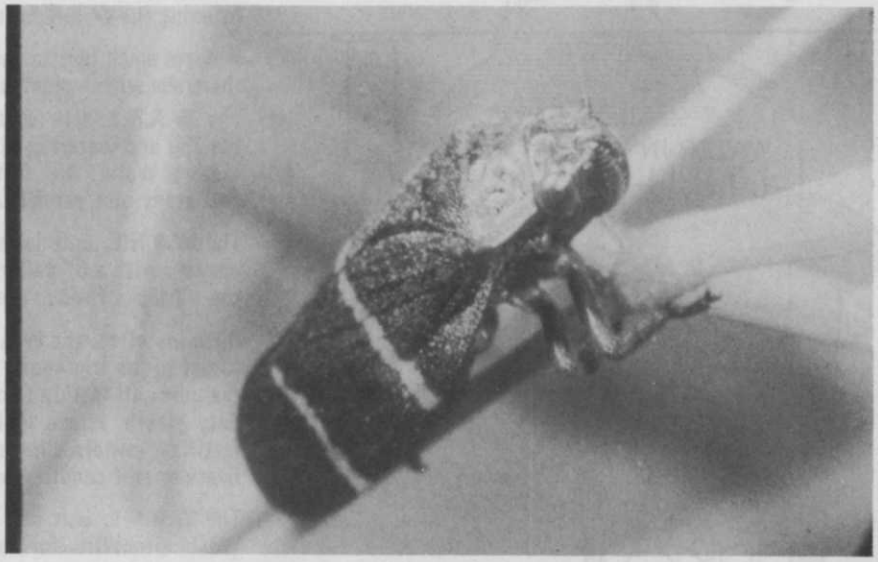
Pollet said ground pearls are scale insects which secrete a white waxy sac about their bodies giving them the appearance of small pearls. These pests cause irregular dead patches in the turf and are very difficult to control. Billbug larvae are similar to white grubs, but are legless and the adults are weevils or snout beetles. "The weevils lay eggs in the stems of grasses and the grub bores or feeds in the grass stems," he said. "Small dead patches of grass easily lifted from the soil is usually observed in late summer. The dead stems contain a sawdust-like material from the boring of the grub."

He said insect pests which feed on the leaves and stems of grasses include sod webworms, cutworms and armyworms. All are caterpillars of small moths.

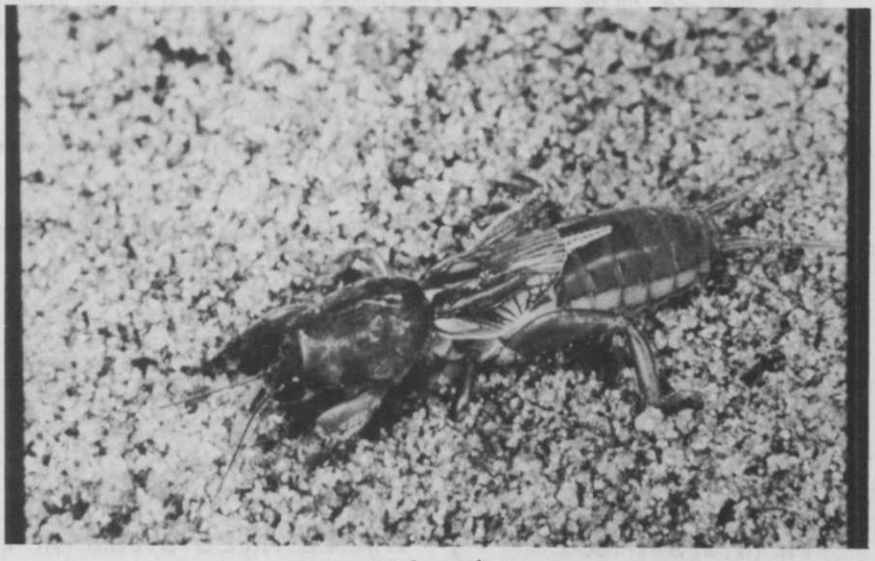
Sod webworms are small grayish or whitish moths which rest during the day and fly about at night over the lawn with the females scattering eggs. The caterpillars or worms which hatch feed only at night and live in a silken tunnel in the soil during the day. They feed, line and reinforce the tunnel walls with small pieces of blades of grass. Infested

(continued on page 32)

Spittlebug adult emerging from spittle mass



Adult spittlebug



Mole cricket

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The turf-care line-up.

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Big Business in Ohio . . .

The 1975 Ohio Turfgrass Conference and Show was the biggest and some say the best in the event's nine year history.

ANYONE who has attended industry shows for a number of years has their favorites. And at the top of most lists is a regional turfgrass meeting that consistently draws over a thousand people; all interested in promoting the Midwest turfgrass industry. Once again the Ohio Turfgrass Conference and Show reached an all time high attendance for both the equipment exhibits and educational portions of the show.

Some 1,170 turfgrass managers, golf course superintendents, contract applicators, and commercial representatives filed into the Cincinnati Convention and Exposition Center to witness one of the largest and most comprehensive equipment and supply displays ever assembled at the Ohio show. But the show is much more than a buyers and sellers market.

"We try to assemble a complete educational program, drawing experts from Ohio as well as many speakers from outside the state," said John Laake, in-coming president of the Ohio Turfgrass Foundation and superintendent of Crest Hills Country Club, Cincinnati, Ohio. Each year the Ohio Turfgrass Foundation attempts to provide the latest in management techniques and research information. "The people attending this conference vary greatly in work experience and educational background," said Laake. "Our goal is to provide a well-rounded program that contains information for both the novice turfgrass manager as well as the pro."

Dr. Fred Ledeboer, director of research, Loft's Pedigreed Seed, summed up the theme of the conference saying that the modern turfgrass manager must gear his management practices to the needs and requirements of his particular turf. Also included in his talk on evaluation and recommendations of Kentucky bluegrass and perennial ryegrass, Ledeboer stressed the correct

is Green Business

selection of turf types for acceptable cut and appearance. "Some of the new fine-leafed ryegrass varieties when used in mixtures provide tremendous competition for weeds," he said. "This allows the grass to attain sufficient maturity so herbicides may be applied to control the new and existing weeds."

Ledeboer also presented arguments for blending a particular turf species pointing out that a blend can bridge stress periods commonly found in most single varieties. "However, in a seeding mixture that contains both bluegrass and ryegrass, the percentage of ryegrass should not exceed 20 percent by weight," he added.

Continuing on with selection of turf types Lee Record, mid-continent director, USGA, discussed the cool season bentgrasses. "The four categories of bentgrass commonly used are Red Top, Creeping, Colonial, and Velvet," he said. He traced the origin of bentgrass from Europe to the East coast. Record also recommended the Creeping varieties as the most practical bentgrasses adding that the other varieties also have places in other uses such as fairway mixtures. "For the best playing surface and the healthiest plants keep the bentgrass dry, firm, and hungry," he added.

Dr. James Watson, vice president, the Toro Co., evaluated the total turfgrass management picture by examining the financial and managerial aspects of equipment selection. "It all boils down to people and machines," he said. "Seventy percent of the total budget on a turf area is consumed by labor, so it behoves us to purchase equipment that allows increased use and is the proper unit for the job." Watson stated that the reel type mower is more efficient and requires less fuel per acre of grass cut than a rotary or flail. "The number of blades also effects the quality of cut and the amount of fuel consumption," he added.

Depending on the financial structure of your particular organization, Watson said, leasing equipment may be the best alternative to an outright purchase. But however you obtain your equipment and whatever equipment you use there

The 1975 Ohio Turfgrass Foundation's Board of Directors from left: Bill King, Norwood Public Schools; John Laake, Crest Hills Country Club; John Fitzgerald, Century Toro; Paul Mechling, Sylvania Country Club; Dr. Dave Martin, Ohio State University; Kermit Delk, Springfield Country Club; Bill Hill, George W. Hill and Co.; Merrill Frank, Brookside Country Club; Art Edwards, WEEDS TREES AND TURF; Mac Gilly, Findley Country Club; John Goodwin, Shawnee Country Club; and Lou Greco, Squaw Creek Country Club.

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are a few rules that should be followed for the most efficient operation. Watson suggests that the engine should be operated at 75-80 percent of peak; don't use alternate fuels; avoid idling; train operators for efficient use; obtain the services of a knowledgeable mechanic; and plan your next purchase on need not impulse.

The second day of the conference opened with three split sessions. Attendees had the opportunity to attend sessions on Poa annua, general grounds, and cemetery grounds.

Lee Record, mid-continent director, USGA.

Dr. Charles Powell, Ohio State University, opened the general grounds session with a look at the total fungicide picture. "There's been a radical change in fungicides and insecticides in recent years," Powell said. "We no longer have general biocides, everything is now accomplished by a specific material for a specific problem." One of the most important considerations when applying fungicides is timing. And Powell suggests that knowledge of the particular disease is paramount when attempting to control it. "The first line of defense against any disease should be the use of disease-resistant varieties, the second line of defense is good maintenance practices, and the last alternative is chemical control," said Powell.

Timing is important when applying fungicides. And it is equally important in the control of crabgrass and annual grass. Dr. Robert Miller, Chem-Lawn Corp., reinforced Powell's know-all-you-can principals by saying: "When using a pre-emergent herbicide for the control of crabgrass, timing of application is critical." Second to timing, is the type of herbicide used, rate of application, and lastly its likelihood of injury to bluegrass.

Also from the Chem-Lawn Corporation was Dr. Robert Partyka. He spoke on the frequency of pesticide injury to non-target plants. "The tendency is to think that if a little chemical gives so much control than a lot of chemical will give more control," he said. "That's one principal that doesn't hold true when applying chemicals." Partyka discussed a wide range of topics including typical damage symptoms caused by phenoyx-herbicides, use of soil sterilants and the damage that can occur when the drainage pattern of the area is not known. When the wrong chemical is applied to a plant and death or distortion results, residue work must be performed to determine what chemical was applied.

"Residue work is expensive to perform but it may be necessary if the property owner is demanding payment for damages to his plants," Partyka added. And Partyka, like the two speakers before him, stressed the importance of knowing the basic requirements of a plant.

New fertilizer products currently receiving considerable market attention are IBDU and Urea Formaldehyde (UF). Dr. James Wilkinson, Ohio State University, reviewed his current tests using both types of fertilizer. Wilkinson compared and contrasted the two products using spring green-up and maintained summer quality as limiting factors. "The best IBDU tests were achieved with a spring and fall application," he added. "This combination gave good spring green-up and the turf stayed green throughout the summer." UF releases nitrogen by temperature-controlled microorganisms breaking down the particles, he said, resulting in a faster spring green-up than IBDU.

The 1975 exhibit area.

The Wednesday afternoon program was a two-way split of basic turfgrass management and a general session featuring three governmental regulation topics; FIFRA, OSHA, and pesticide labels, and a presentation on employee motivation.

Dr. Fred Ledeboer, Loft's Pedigreed Seed.

University of Cincinnati's Dr. Samuel Mantel said a basic rule in employee relations is not to promise rewards to employees that you are not absolutely certain you can deliver. All of us have a hierarchy of needs, he added. Lower level needs must be satisfied before higher level needs can be fulfilled. "The unsatisfied need motivates a person to fulfill that need," he said.

New officers for 1976 are: John Laake, president, Crest Hills Country Club; Lou Greco, president-elect, Squaw Creek Country Club; John Fitzgerald, vice president, Century Toro; Merrill Frank, treasurer, Brookside Country Club; and Paul Mechling, immediate past president, Sylvania Country Club.

Trustees are: Kermit Delk, Springfield Country Club; Bill Hill, George W. Hill and Co.; Bob Robinson, Chem-Lawn Corp.; and Max Szturm, Wildwood Country Club.

The 1976 Conference and Show of the Ohio Turfgrass Foundation will be held in Columbus, Ohio. □

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FUTURE SUPERINTENDENT

By J. D. BUTLER, Associate Professor, Turf, Colorado State University

THE TURFGRASS manager is facing a technical revolution. As a professional he realizes that turfgrass culture is becoming less an art, and more and more a science. Today, turfgrass publications are scientific; students major in turfgrass science. The future will, perhaps very shortly, see our generally agrarian occupations change into ones of a hardcore, complex scientific nature.

Many changes seem to be eminent in the turfgrass professional's future. One can foresee computer systems that will assist or control management programs. It is conceivable that a central system, located at a major university, will provide satellite systems with directions for maintenance and establishment, the correct time to mow, when and what pesticides to apply, etc.

The difficulties that the professional faces in striving to produce a perfect turf cannot be overemphasized. Aspects of an ideal turf, such as; pure and pest-free stands, a uniform appearing turf, and continuous optimum growth are not natural. Achieving such ideals demands that the turf professional have an in-depth understanding of the cultural system and how to manipulate it.

In the past, both people and turf, primarily because of an agrarian society, were located on good land. And, many old turf areas are still excellent and easy to maintain because the soils were not inverted nor denuded during construction.

Recently much attention has been devoted to devising ways to improve the physical quality of soils for turf. Most of the research with artificial media has led to rather consistent recommendations: use a high percentage of quality sand. U.S.G.A. and Purr-Wick greens, and PAT fields are primarily sand medias. The advantages of a porous media with rapid drainage and good aeration are quite evident, and may leave few alternatives on the media to use in constructing heavy use athletic turf areas. Such artificial systems are not expected to solve all turf problems. Such systems can dramatically increase the turf professional's control of the environment; however, to take full advantage of the system he must understand it and manipulate it to full advantage.

In the future more attention will be given to the preservation of existing good soils. Stringent laws will be passed to preserve and protect our valuable soils, and buildings and turf will continue to be relegated to lower and lower quality land. These trends will necessitate more in-depth research on turf soils, and the use of the more sterile soils will call for increased knowledge and more manipulation by the turf professional. As in the past, a dependence will need to be placed on a rather inexhaustible organic matter supply to improve soil quality.

In the future significant improvements will be made in conventional methods of topdressing and cultivating the soil below the turf surface. And, complex chemical and physical developments will make it possible to turn poor soils into those quite desirable for turfgrass production.

Early turfs were primarily a mixture of several perennial grasses and forbs. Mixtures of cool season grasses continued as a mainstay of the industry until recently. Recent trends have been toward the use of only one kind of grass for turfing areas. Today, warm season grasses are established primarily as single varieties. Whereas, blends of two or more varieties of the cool season grasses, especially of Kentucky bluegrass, are in vogue.

The current deluge of turf varieties seems to have caused undue concern in the turf industry. After all, turf is the most widely grown crop in the country with Kentucky bluegrass, bentgrass and bermudagrass all grown under an extremely wide range of conditions. Many other important agronomic crops have a multitude of varieties, and these have been successfully handled for years. Today, as in the past, there is little effort to regionalize the use of varieties according to their best adaptability, or to adapt turf varieties to adverse environmental situations. True, the wide choice of varieties requires that the turfgrass professional keep abreast of variety development, performance and availability.

Early literature suggested turfgrasses such as redtop, crested dogstail and Wood meadowgrass, none of which are hardly considered for use today. And, in those days grasses such as tall fescue and bahiagrass were not suggested nor available for turf use. Future work on the development of outstanding turfgrasses will continue at a rapid pace, and today's varieties, which would have been considered near perfect a generation ago, will be phased out.

In the immediate future major input will continue toward the development of turfgrasses that have outstanding qualities such as high densities, high levels of disease resistance, and a low growth habit. Drought and salt tolerance, resistance to wear and pollution, and the ability of grasses to remain green under cold conditions will become more important considerations. In addition to the development and introduction of grasses for the South, the arid West and the extreme North, one might foresee the use of bentgrasses with extensive rhizome systems, and turfgrasses with a wide range of color.

Present and future turf quality is often dictated by practices implemented at the time of establishment. The importance of an ability to properly water turfgrass during establishment cannot be overstressed. In cool, humid regions the preferred time to seed has long been late summer or early fall; however, in the past an inability to properly irrigate and natural spring precipitation often caused seeding to be done in the spring. In the not-too-

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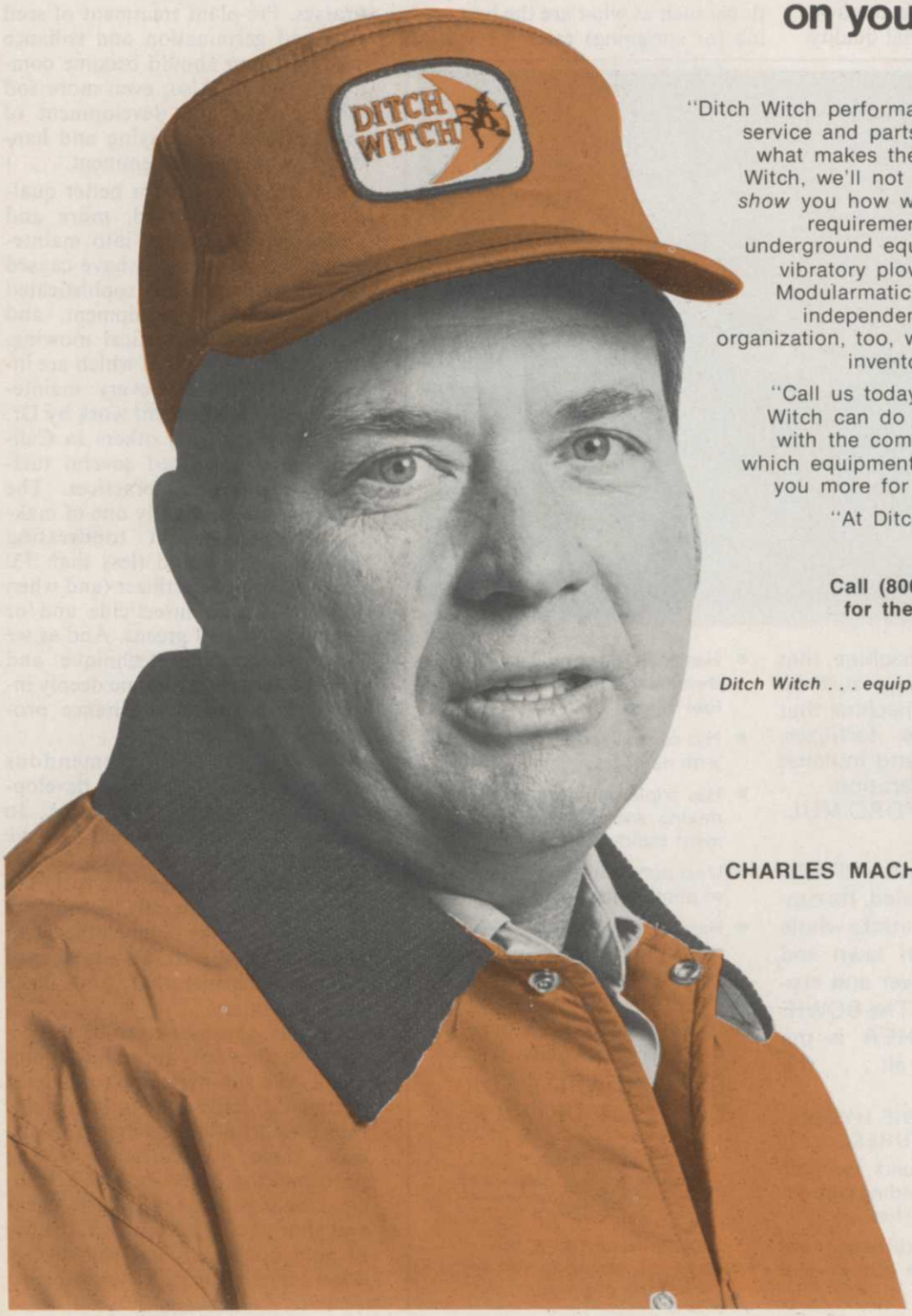

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distant past factors that often contributed to establishment difficulties were poor seed and seeding equipment, non-use of starter fertilizers, and lack of pesticides to use at the time of establishment.

Presently, there seems to be little research and industrial development directed toward the improvement of establishment techniques. Today, starter and post-establishment fertilization and pest control, seed and vegetative material quality and handling are continuously stressed. But, too often these and other important establishment factors are afterthoughts, and they are not plugged into turf management systems.

Significant and rapid developments in turf propagation procedures seem less likely than for improvements in maintenance. Answers to basic and current questions, such as what are the best seeding (or sprigging) rates for various conditions for the most rapid development of a mature sod or useable turf, need to be more precisely worked out. Once the best depth and placement for various plantings are known, equipment will need to be developed to do the job. Development and selection of varieties that germinate and establish rapidly should become added performance criteria for new turfgrasses. Pre-plant treatment of seed to speed germination and enhance seedling vigor should become common practice. Also, even more sod will be used and development of more efficient sod laying and handling techniques are eminent.

As the demands for better quality turf have evolved, more and more effort has gone into maintenance. These demands have caused the development of sophisticated turf maintenance equipment, and practices such as vertical mowing, aerification, etc. All of which are included in virtually every maintenance program. Recent work by Dr. John Madison and others in California has combined several turfgrass maintenance practices. The procedure is essentially one of making frequent, light topdressing applications of sand (less than 1.0 mm), with seed, fertilizer (and when appropriate, an insecticide and/or fungicide) to golf greens. And as we move ahead, this technique and others like it may become deeply instilled into turf maintenance programs.

In recent years tremendous strides have been made in developing turf irrigation equipment. In part, these advancements have resulted from the demands for the ultimate in turf. Also, the turfgrass economy has generally been quite good, and unlike many other segments of agriculture, results were of primary consideration and costs were secondary.

Today, there seems to be an adequate choice of sprinkler equipment. And sub-irrigation (or at least partial sub-irrigation) is being utilized only to a limited extent. However, there are currently several problems that must be faced. Principal among these seems to be a general shortage of water. Also, the use of poor quality ground and surface water, and effluent water presents

(continued)

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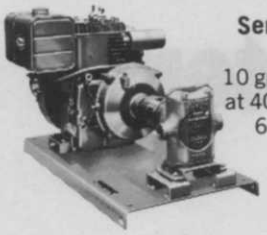

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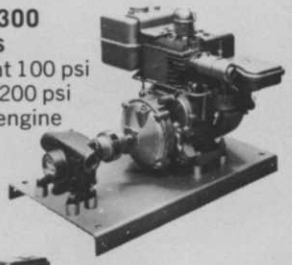

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problems that need to be handled with care (constant monitoring of soil and water, etc.). In the future, in arid and semi-arid regions of the U.S., because of the influx of people and water required to develop natural resources, water used for turf will need to be justified, and little will be used on roadsides, golf course roughs, etc.

An increased use of drip irrigation for turf and the development and use of drought tolerant grasses are in the offing. Every turf manager, regardless of his location, will become more aware of the problems associated with water.

Since man first began using sheep to keep a short turf, there have been many methods employed to mow grass. Reel mowers and their continued refinement, and the relatively recent development and heavy use of rotary mowers have revolutionized the industry.

Current mowing practices have been a result of the kind of equipment available, the demands of the people, and the kind of grass grown. Several turfgrasses used in the past and at present are poorly adapted to current mowing practices. The ability of the new turfgrasses to tolerate current mowing practices has been an important consideration in determining whether or not they will be introduced. Many of the recently introduced turfgrasses may make it possible to change a mowing program. Some of these grasses, depending on your needs, may produce a satisfactory turf with less frequent or even only an occasional mowing.

Mowing equipment will continue to be refined. Larger and larger air cushioned mowers, devices that cut via wave emission, and the availability of more and more sophisticated growth retardants could greatly affect equipment and mowing procedures of the future.

Early turf fertility programs often relied upon the use of compost, manure and leachate from manure to supply nitrogen to the turf. And, the use of sewage sludge has been successfully employed for years. While more recently the ready availability of inexpensive manufactured inorganic and urea fertilizers greatly changed turfgrass management practices. For several years there seems to have been too little attention paid to developing comprehensive fertilization programs, and poor fertilization procedures (too much, imbalances, etc.) may have been more of a problem than was realized at the time.

The synthetic organic fertilizers, such as IBDU and urea-forms have offered effective means of providing slowly available nitrogen for plant growth. Another recent means of controlling nutrient availability has centered around coating fertilizer prills. The coating will allow nutrients to slowly ooze into the root zone where they are available for plant use.

Some recent fertilizer program changes have been influenced by the availability of more efficient applicators. Recently more effort has been given to controlling nutrient availability of soluble materials by making frequent fertilizer applications at light rates. Thus, a more constant growth rate, and the benefits derived from this, have been achieved.

There is a serious need for research that will lead to a better understanding of the nutritional needs of various turfgrasses and to the development of more refined fertility programs. In the past fertilizers were applied primarily to green and thicken the turf. However, recent research and observations are pointing more and more to some rather subtle turf responses effected by fertilizer practices. The effects of various nutrients on factors such as winter hardiness, disease susceptibility and mowing quality, etc. will become more important in developing future fertility programs.

In the future high priority will be given to the selection of grasses that will do well at low soil fertility levels. Development of varieties for specific regions could make it possible to greatly reduce or eliminate the need to apply specific nutrients. For example, the need for application of iron-containing fertilizers on turfgrass grown on the alkaline soils of the West might be greatly reduced or eliminated.

The future for the development and utilization of fertilizers designed specifically for turf use is bright. In the near future, if turf is tending to grow too rapidly, it may be possible to "turn it off" by applying a chemi-

(continued on page 34)

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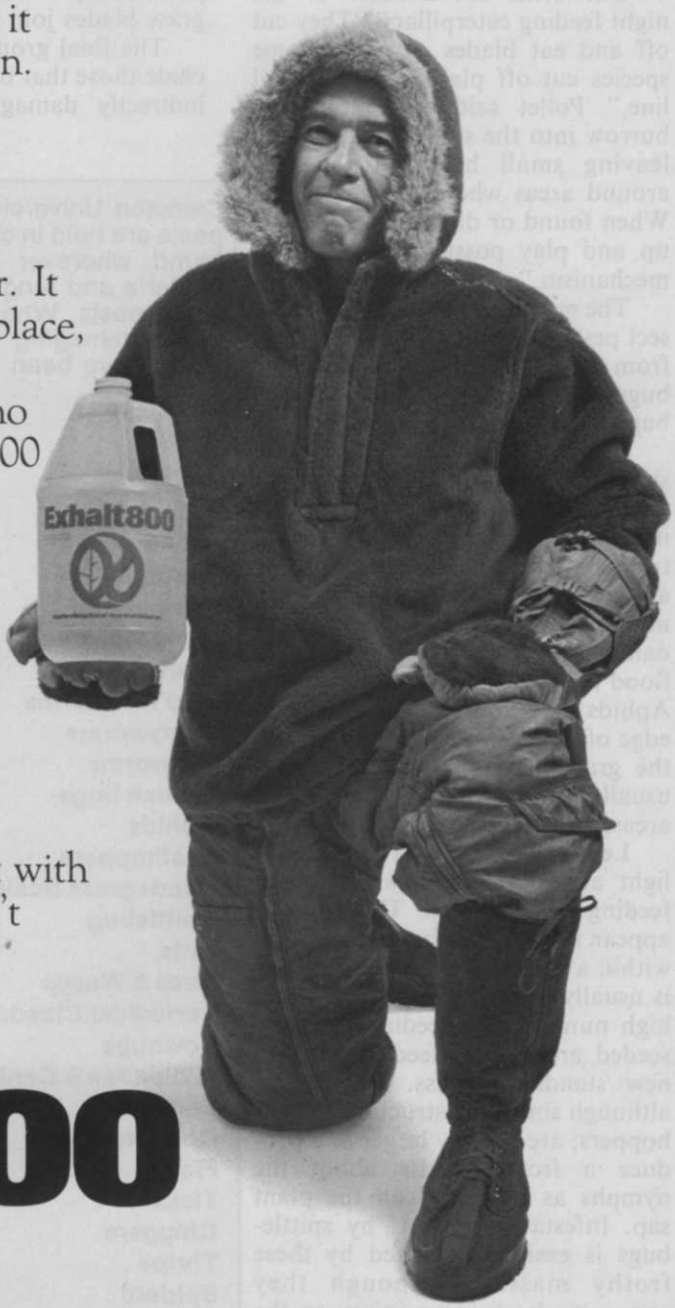

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TURF PEST CONTROL *(from page 20)*

areas usually turn brown and enlarge rapidly if uncontrolled. The worms may be found by separating the dry sod.

Armyworms are named because of their habits, Pollet said. They move across the lawn or turf in large numbers and eat everything. The two common armyworms are the fall and true armyworms, both of which can do serious damage to turf. Infestations noted early may appear as a small webbed area in the turf. As they develop the turf may be eaten to the soil.

Cutworms are another of the night feeding caterpillars. "They cut off and eat blades of grass, some species cut off plants near the soil line," Pollet said. "They usually burrow into the soil during the day leaving small holes in the turf around areas where they have fed. When found or disturbed, they curl up and play possum as a defense mechanism."

The most varied group of turf insect pests are those that suck the life from the grass. These include chinch bugs, aphids, leafhoppers, spittlebugs and scales.

Chinch bugs and aphids cause similar damage to turf leaving large circular patches of yellowing or dying grass. Chinch bugs feeding in the turf may cause extensive damage and never be observed. To determine if chinch bugs are causing damage, it is often necessary to flood them out of their feeding sites. Aphids may be found on the outer edge of the damage area, massed on the grass leaves. Aphid damage is usually more common in shaded areas, like under trees.

Leafhoppers cause a mottling of light and dark green areas where feeding has occurred. They usually appear in high numbers in turf and within a few days are gone. Control is usually unnecessary except where high numbers are feeding in newly seeded areas. This feeding can kill new stands of grass. Spittlebugs, although similar in structure to leafhoppers, are slightly larger and produce a frothy spittle about the nymphs as they feed on the plant sap. Infestation of turf by spittlebugs is easily recognized by these frothy masses. Although they appear to be causing injury to the lawn or turf, control is seldom necessary except to remove the unsightly masses.

Rhodesgrass scale attacks the crown of the grass plants, causing them to wither and die. High infestations can cause large dead areas and are very damaging on greens. Scales are hard to detect because of their ability to camouflage themselves and the fact that they are not very active on the crowns of the plants. Heavy infestations can be mistaken for over fertilization or caked fertilizer on the grass plants, particularly in the areas where the grass blades join the stems.

The final group of turf pests include those that burrow into the soil indirectly damaging the turf and other anthropods which may be considered nuisances. The former includes ants, bees, wasps and periodical cicadas.

"These insects live in the soil," Pollet said. "The damage they cause is the result of them setting up housekeeping. Their digging and tunneling causes the soil to become soft, spongy and to dry out quickly." The nuisance turf pest includes sowbugs, millipedes, centipedes, earwigs, crickets, fleas, ticks, chiggers, thrips and spiders. Some of these cause no problem except for their occasional high populations. Fleas, ticks, chiggers and thrips can be a nuisance and a problem. Their bites can cause irritation, itching and rashes. Occasionally, fleas and ticks can be associated with the transmission of disease organisms.□

Clemson University entomologist Professor D. K. Pollet said many turf pests are held in check by other insects. Predators and parasites may be found wherever pest populations occur. Endemic populations of bacteria and fungi are also effective in controlling or helping to control these pests. Where these natural controls cannot maintain the pests below damaging population, the following table shows the chemicals which have been found effective against these pests:

	Diazinon	Malathion	Sevin	Baygon	Proxol	Chlordane	Dursban	Aspon	Dylox
White Grubs	X				X	X	X		X
Billbugs	X		X						
Wireworms	X					X			
Mole Crickets	X			X			X		
Ground Pearls	No effective control								
Sod webworms	X		X	X	X		X	X	X
Armyworms	X		X		X				X
Cutworms	X		X		X				X
Chinch bugs	X		X	X	X		X	X	
Aphids	X	X							
Leafhoppers	X	X	X						
Rhodegrass Scale	X	X	X						
Spittlebug	X		X				X		
Ants	X					X	X		
Bees & Wasps	X		X						
Periodical Cicada			X						
Sowbugs	X						X		
Millipedes & Centipedes	X		X			X	X		
Earwigs	X		X				X		
Crickets	X			X		X	X		
Fleas		X	X	X			X		
Ticks	X	X	X						
Chiggers	X	X							
Thrips	X	X							
Spiders						X			

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FUTURE *(from page 30)*

cal to regulate nutrient availability in the soil. Fritted fertilizers that will release nutrients, especially micronutrients, over a period of 10 to 20 years or more may become widely used for turf. And, because of the evolution of more sophisticated irrigation equipment and higher quality fertilizers aqueous fertilization will become commonplace.

In the future legumes such as improved white and strawberry clover, because of their nitrogen fixing abilities, may again become widely used for turf. More and more attention will be given to the use of organic wastes as nutrient sources. And, fertilizer use will be well planned, with major consideration given to long term effects, and not just to tomorrow.

Highly selective chemicals are now available for the control of virtually any turf pest problem. Only a few years ago there was no satisfactory selective chemical control for annual grasses in new seedings of Kentucky bluegrass, nor Pythium blight in bentgrass. Today, however, because of available pesticides, grasses are grown well beyond their accepted range of a few years ago.

The effects that certain pesticides may have on the turfgrass system have been and are currently under investigation. Research findings to date indicate that certain pesticides may materially reduce root systems, increase thatch, etc. Also, research and observations have indicated a wide variability in varietal tolerance to specific herbicides and to fungicide-resistant strains of fungi. Thus, future pesticides will be subjected to even more rigorous testing. And, the turf manager will be concerned with much more than immediate pesticide effects.

There will always be a need for better pesticides. However, the current availability of outstanding products will likely restrict efforts for and the introduction of new pesticides. For several years activated charcoal has been used to inactivate specific pesticides. Future significant developments in inactivation of pesticides would open a new era for pesticide use in turf management. Pesticides of the future are likely to become much more specific, and the turf manager will have to become more knowledgeable about pests and pesticides.

In the future pest problems will be greatly restricted through the introduction and use of improved varieties. The future turfgrasses will have combined resistance to most common insect and disease pests.

Turfgrass management practices are continually changing, and many factors will influence turfgrass management decisions. Successful management programs are developed through an in-depth understanding of the turfgrass system and its many complexities. The future of the turfgrass industry depends upon the professional's ability to supply and utilize technical information. The turfgrass manager's job is not going to get any easier. □

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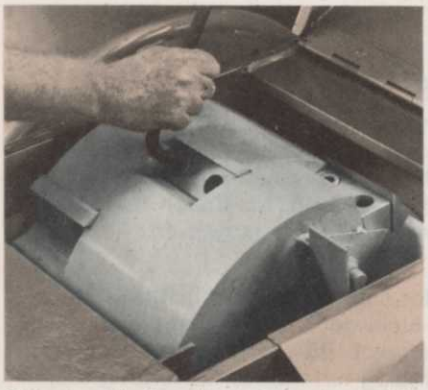

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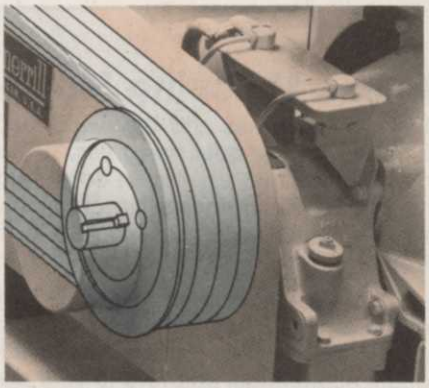

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Stately elm trees that once adorned America's streets, parks and lawns in large numbers from the Great Plains to the Atlantic coast may be on their way to making a comeback. A hybrid, named "urban elm" will be available in limited supply in about three years. It is resistant to Dutch elm disease which has spread throughout the American elm's natural range since the 1930s.

Scientists from the Shade Trees and Ornamental Plants Laboratory, Delaware, Ohio, developed urban elm from a cross between an elm from the Netherlands and a Siberian elm. The new tree is expected to grow to moderate size making it more suitable for urban planting than the American elm, according to plant pathologist Dr. Charles L. Wilson. Wilson told WEEDS, TREES & TURF that like the American elm, the new hybrid grows fast in various soil types, has dark green foliage, and is tolerant to drought, pollution, soil compaction and restricted root space.

In the fall, urban elm offers the promise of a striking appearance, because in locations where it is adapted, the tree retains its foliage and dark green color longer than other trees. The new hybrid has a profuse upright branching habit and its dense foliage produces a compact crown.

The team began developing urban elm in 1956, crossing parent trees to obtain seedlings that proved capable of withstanding inoculations of the fungus, *Ceratocystis ulmi,* which causes Dutch elm disease. Then came years of propagation and seasonal susceptibility trials in which plants grown from cuttings were inoculated with strains of fungi at various times of the year. For the past two years wholesale nurserymen have been testing the tree further for adaptability to various climatic conditions. An agreement has prescribed that the nurserymen propagate the elms in sufficient numbers to insure they will be available to other nurserymen before commercial trade begins. Plant scientists at the Delaware laboratory are developing more hybrid elms that may be released within a few years. About six different elm selections including two American elms have moderate to high resistance to Dutch elm disease, according to plant pathologist Dr. Lawrence R. Schreiber.

Plant geneticist Dr. Alden M. Townsend claims physical characteristics vary substantially among elms in the breeding program. Some could be made into shrubs. Others may grow from seed to heights of 15 feet within three years. A Chinese elm, with a deep red coloration, and a columnar shape elm have been developed. This tree might be used to replace Lombardi poplar which is susceptible to cankers.

Buying, Selling Standards Suggested for Nurseries

A joint committee of selected representatives from the Wholesale Nursery Growers of America, National Landscape Association and Garden Centers of America has recently adopted operating standards of practice between buyers and sellers of nursery stock.

The standards, judged by the committee to be fair and ethical agreements between two parties, were developed to encourage greater cooperation between all phases of the nursery industry and to aid in achieving common industry goals.

The committee is presenting the standards to the industry as a suggestion. They are not intended to be binding upon any firm of persons, nor to constitute an agreement on the part of any member firm to adhere to the suggested standards.

For buyers:

- All buyers should specify the date order is expected to be delivered or picked up, with the understanding of a week's tolerance, including circumstances of unusual weather conditions or crop failure.

Then the seller should notify the buyer immediately upon becoming aware of his inability to comply with the above, at which time the two parties should determine substitutions or other alternate causes of action.

- The buyers of plant materials will be responsible for notifying seller of discrepancies in the order. This notification should be made within 10 days of receipt of the order and failure to do so will constitute acceptance of order as received.
- Length of time for payment of order will be determined by parties involved.

For sellers:

- All stock sent to the buyer shall be true to name as ordered to the best of seller's knowledge; except that a buyer may be notified of necessary substitutions upon seller's acceptance of order a month prior to shipping date requested.
- All stock shipped, or delivered, shall be of the size, grade, quality and quantity specified in the order unless buyers are advised of the unavailability of the exact item or items ordered and agree to accept a different size, grade or quality with proper price adjustments, when notified at time of ordering or a month before shipping date.

Exceptions are unforeseen circumstances and/or acts of God within the 30-day notification period. Minimum ball size will be that set forth in the most current issue of the American Standards for Nursery Stock.

- All stock sent to buyer will be correctly labeled or adequately identified to the best of the seller's knowledge. All labeling will be agree on by buyer and seller at the time of purchase.
- Sellers, upon request, will provide information to buyer on plant material which requires special care to maintain saleable quality.
- Payment of shipping charges accrued through errors in orders should be determined by the parties involved. Errors as to kind, quantity and quality of plant material tagged by buyers in the field should be assumed by the buyers.

Sellers should assume responsibility for shipping and reasonable handling charges accrued as a result of errors in the shipment by the seller, which includes substitution of kind and/or quality of plant material ordered without prior notification and agreement by the buyer.

GCSAA Set for Minneapolis

Back in 1936, superintendents belonged to what was called the National Association of Greenkeepers of America.

The annual show and conference was held in Cleveland that year — it had about 40 exhibitors and over 400 attendees including visitors. But some things have not changed much. In the magazine of the association one of the editors expressed concern that only 150 members of the association bothered to attend the conference at all.

Some other things also have not changed much. Some of the companies represented at that show of 40 years ago were Buckner Manufacturing Co., International Harvester Co., Jacobsen Manufacturing Co., Mallinckrodt Chemical Co., Milwaukee Sewerage Commission Standard Manufacturing Co. (now Standard Golf Co.), O. M. Scott & Sons Co., and Toro Co.

1936 Cleveland Show

These and other companies have created an early sell-out of exhibit space for the Golf Course Superintendent's Association of America's 47th Annual International Turfgrass Conference and Show Feb. 8-13 in Minneapolis.

A total of 125 firms have made commitments on the 100,000-square-foot exhibit hall of the Minneapolis Convention Center.

Officially opening Feb. 10 by the GCSAA's executive committee, the three-day show will offer the expected 5,000 conference registrants close-up viewing of nearly $8 million worth of maintenance equipment and services used on today's golf courses. Many firms will introduce additions to their product lines.

1975 New Orleans Show

The show is held in conjunction with the GCSAA's week-long educational conference, which this year will offer more than 45 hours of educational programs, featuring 65 speakers.

Four preconference seminars will also be offered this year, beginning Feb. 7. The two-day courses, specifically designed for golf course superintendents, will cover landscape design, personnel management, pesticide usage and turf nutrition.

"Bad Green Syndrome" Cause Cited

It seems every golf course has a bad green that has to have custom care. Causes of the loss of greens are complex and can seldom be ascribed to a single factor. However, the most frequent factor that predisposes a green to death is poor construction, according to University of Maryland turf specialist John R. Hall.

"The loss of a green can often be ascribed to disease, scaled or drying out, but these are only the harbingers of death that strike when the stage has been set and more often than not, the necessary conditions are created by improper golf green construction," Hall said.

Hall said the bad green always exhibits high bulk density, heat conductivity and mechanical resistance to root penetration. It is the green that retains more moisture than is necessary and has low air porosity, slow water infiltration and percolation rates. The solutions available to the golf course superintendent are: (1) reconstruct the green removing the existing topsoil; (2) attempt gradual soil modification in conjunction with management practices such as aerification and topdressing; (3) radically modify the existing soil by incorporating massive amounts of soil amendments; (4) keep nursing the bad green. "The last alternative puts the superintendent into the 'bad green syndrome,'" Hall said.

Hall said if the choice is to reconstruct the green that United States Golf Association Green Section specifications should be obtained and used. He also said Texas A & M provides a soil testing service to find out what combinations meet USGA specifications.

Gradual soil modification in conjunction with aeration and topdressing is most often the first approach to improving a bad green. This approach involves frequent aeration with large-diameter tines to as great a depth as possible. The cores must be removed from the green and then topdressing is applied and dragged into the holes. This procedure would have to be repeated several times over several years to achieve extensive soil modification.

Radical soil modification is an alternative that would involve trying to modify the existing soil structure and texture by incorporating the amendment into the existing soil with plows and discs. This procedure obviously takes the green out of play for about four months. In situations where the existing bentgrass is good it should be removed as sod before soil modification and replaced after the amendments have been incorporated. This considerably reduces the time the green is out of play.

Several amendments are available. The type of amendment selected should depend on what corrective result is desired. If improved soil permeability is desired, sand and calcined clay have been shown to be very effective.

If increased water retention is desired, amendments such as soil, peat and calcined clay will be needed. The amounts of any of these amendments needed to achieve a given level of water permeability or water retention is difficult to determine but this service can be provided if the existing soil and amendments are sent to a laboratory, Hall said. Massive additions are generally required. If a superintendent is attempting to modify a clay soil, it is likely that 85 to 90 percent sand will be needed to achieve adequate modification.

Pine Needle Scale Control Covered with Supracide

"Supracide 2E" has received label acceptance from the federal Environmental Protection Agency for control of pine needle scale on Scotch, Mugho and red pines in the northeast section of the United States.

Supracide is Ciba-Geigy Corp. methidathion insecticide-miticide that controls certain insects of alfalfa, cotton, tobacco, grapefruit, lemons, oranges and nursery stock.

For pine needle scale control, application should be made once a season after scale crawlers have hatched in early spring for spring-generation crawlers or in summer for second-generation summer crawlers.

The summer spray will also control pine tortoise scale.

Whose Responsibility Is It To Enforce Course Rules?

Are common-sense rules on the golf course made to be broken? Unfortunately for many superintendents, this is the case.

"What's the use?" one superintendent told Gerry Finn, contributing editor of the newsletter of the Golf Course Superintendents Association of New England. "I take time and money to see that rules signs are made up and set up in certain spots on the course. So, what happens? Some member in a cart knocks one down. Another sees that it is in the way of his swing. So, he pulls it up and tosses it into the woods. That's why I don't bother with the rules signs anymore."

Many superintendents feel the same old golf car rules are being ignored. Most flagrant of these are driving too close to the green, driving over and through tees, straying off the golf car path and making spinout turns. The same goes for ball marks not being repaired in many cases. Add to this the inconsiderate member who takes target practice on par three holes and the problem becomes compounded, Finn writes. But who should enforce the rules?

One counter to those breaking golf and course rules would be a combination of the superintendent and the professional. Since the pro has the opportunity to "socialize" with members in the form of playing a round or two together, perhaps he might be better-versed in reporting violations. And the superintendent in his daily inspection tours could supplement this with reports of his own.

Another superintendent suggested, "I think that the grounds and green committee should be those responsible for enforcing the rules. It is something else for a member to be reminded of rules by the pro or superintendent. He could resent it. It must be his peers who do the enforcing."

Japanese Beetle Parasite Found In Northeast U.S.

A new nematode parasite of the Japanese beetle has been discovered in the northeastern United States. The parasite is being studied as another possible natural method to control the insect.

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THE DIGGIN' DUTCHMAN

M. G. Klein, entomologist at the Agriculture Department's Japanese Beetle Research Laboratory at the Ohio Agricultural Research and Development Center says that Japanese beetle grubs parasitized with this nematode or mermithid (a cylindrical parasite worm) were collected from areas in New York and Vermont.

Identification of the nematode was made by William R. Nickle, nematologist at the Agriculture Department's Beltsville, Md., Agriculture Research Center. Nickle says this worm was previously not known to occur in North America and was thought to be native only to the Soviet Union.

Apparently, Japanese beetle larvae become infected by the mermithids in late summer. Klein told WEEDS TREES & TURF that mermithids emerged in March from larvae collected in October and held in cold storage until January. Parasites emerged in mid-May from larvae collected in April.

The thread-like merimithids, about nine inches long, could be observed coiled inside the collected larvae. At the time of emergence, individual Japanese beetle grubs showed little sign of life except for feeble movement of the mouthparts. A single mermithid normally emerged from each grub, although as many as three parasites were recovered from one host. Most of the host larvae had completed their third moult when the merimithids emerged. Klein says the discovery of this parasitic worm may prove to be an important biological control of populations of Japanese beetle grubs in the northeast.

Tree Protection Needed Before Heavy Snows Fall

Waiting until heavy snow or ice has damaged landscape plants before trying to save them is like closing the barn door after the horse is out, according to Harold Davidson, Michigan State University horticulturist.

"Preventing damage to ornamentals is likely to be much more successful than a salvage effort after the damage is done," Davidson told WEEDS, TREES & TURF. He said remove dead, diseased or weak branches from trees. These are likely to break and fall when loaded with ice. Pay particular attention to limbs overhanging utility lines, buildings or parking areas. These branches should be removed by a trained arborist.

Much of the potential for injury can be eliminated by pruning young trees to take out sharp V-shaped crotches. A broad U-shaped or angle crotch is much stronger, he said. Propping up willows and birches and other flexible trees to keep ice from bowing them down may do more harm than good, he said. The trees tend to bend over and break off at the support point. Injuries to trees can sometime be repaired, depending on the severity of the injury and the importance of the plant.

If ice causes a tree branch to split off but a substantial amount of wood and bark still connects the branch to the tree, quick action may save it.

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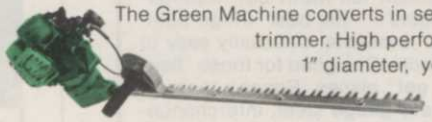

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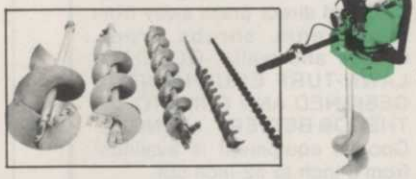

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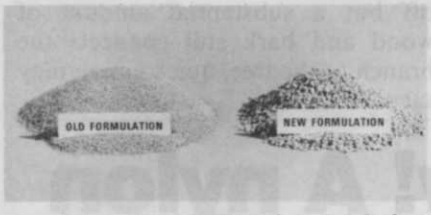
Balan Application Easier With New Formulation

Indiana golf course superintendents and distributors to the turf industry gathered recently at the Country Club of Indianapolis to get a first-hand look at Elanco Products Co.'s



new formulation of Balan 2.5G for turf.

The new formulation's larger, coarser granule results in several advantages to the user, officials of the Indianapolis company told WEEDS TREES & TURF. Since the larger granule moves more readily through rotary spreaders, the application is easier. At the field demonstration, it was observed it can be spread as conveniently as fertilizer with less dust and with less likelihood of drift.

The change in particle size does not affect the weed control results, company officials said. Tests indicate this new formulation effectively controls crabgrass, foxtail, goosegrass and *Poa annua* and is not affected by heavy rain or irrigation.

New Disease Control Unit Started by Forest Service

The Forest Service, U.S. Dept. of Agriculture, has established a new national team of forest insect and disease specialists to provide Forest Service administrative regions and areas with specialized assistance in survey technology aimed at assessing impacts on forest resources caused by destructive insects and diseases.

The new Methods Application Group (MAG), headquartered at Davis, Calif., will also provide help in the application of new and improved techniques and strategies for reducing insect and disease losses.

The MAG will operate on a national scale under the direction of the agency's staff director or Forest and Disease Management in Washington, D.C.

Forest insect and disease-caused losses of forest resources have reached their highest levels ever during the last four years, a spokesman for the Forest Service told WEEDS, TREES & TURF.

Outbreaks of the Douglas fir tussock moth, spruce budworm, southern pine and mountain pine bark beetles, gypsy moth and various diseases are making unprecedented assaults on forest resources.

The MAG will assist field units by strengthening survey efforts to reduce the time required in the detection of these outbreaks and to improve the reliability of insect and disease outbreak evaluations.

This will provide land managers with better information for control decisions.

As its first objective, the MAG will provide leadership and coordination in obtaining forest insect and disease impact information.

Research needs identified by the MAG will be promptly relayed to the appropriate research units.

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Meeting Dates

10 Week Winter Turfgrass Course, Cook College Campus, New Brunswick, New Jersey, Jan. 6-Mar. 13

Maryland Turfgrass Council, Landscape Maintenance Workshop, Interstate Inn, College Park, Md., Jan. 15.

California Weed Conference, 29th annual meeting, El Cortez Hotel, San Diego, Calif., Jan. 19-21.

Chemicals for Turfgrass Usage Seminar, Purdue University, West Lafayette, Indiana, Jan. 19-23.

Kentucky Chapter, International Society of Arboriculture, Stauffer's Inn, Louisville, Ky., Jan. 20.

Michigan State University Turfgrass Conference, Kellogg Center, East Lansing, Michigan, Jan. 21-22.

Ohio Chapter, International Society of Arboriculture and Ohio Nursery Association Short Course and Trade Show, Sheraton-Columbus Hotel, Columbus, Ohio, Jan. 25-29.

Southern Weed Science Society, 29th annual meeting, Statler Hilton, Dallas, Texas, Jan. 26-29.

One Week Winter Short Course, Turfgrass Management, West Tennessee Experiment Station, Jackson, Tenn., Jan. 26-30.

Associated Landscape Contractors of America, annual meeting and trade exhibit, Jan. 26-31.

Virginia Turfgrass Conference, Sheraton Motor Inn, Fredericksburg, Virginia, Jan. 28-29.

California Plant and Soil Conference, Quality Inn, Sacramento, Calif., Jan. 28-30.

Connecticut Tree Protective Association, annual meeting, New Haven Plaza Hotel, Jan. 29.

Turf and Landscape Conference, annual meeting, Tappan Zee Inn, Nyack, N.Y., Feb. 4.

American Sod Producers Association, mid-winter conference, Sheraton Sand Key, Clearwater, Fla., Feb, 5-6.

Golf Course Superintendent's Association of America, 47th international conference and show, Auditorium and Convention Hall, Minneapolis, Minn. Feb. 8-13.

Midwestern Chapter, International Society of Arboriculture, Sheraton-O'Hare Motor Hotel, Rosemont-Chicago, Ill., Feb. 10-12.

Illinois Landscape Contractors Assoc., annual seminar, Villa Olivia Country Club, Feb. 12-13.

American Society of Consulting Arborists, 10th annual meeting, Vacation Village, San Diego, California, Feb. 12-14.

Canada Chapter, International Society of Arboriculture, Chateau Frontenac Hotel, Quebec City, Quebec, Feb. 12-14.

National Arborist Assoc., annual meeting, Vacation Village, Mission Bay, San Diego, Calif., Feb. 15-19.

Wisconsin Arborist Association, annual convention, Midway Motor Lodge, LaCrosse, Wisconsin, Feb. 18-19.

International Pesticide Applicators Association, Successful Business Management Practices, Botanical Gardens, Denver, Colorado, Feb. 20-21.

Southern Chapter, International Society of Arboriculture, Myrtle Beach Hilton, Myrtle Beach, S. Carolina, Feb. 22-25.

Shade Tree Short Course, 19th annual,Scheman Continuing Education Center, Iowa State University, Ames, Iowa. Feb. 25-27.

Professional Turf and Plant Conference, eighth annual, Saisbury Club, Eisenhower Park, East Meadow, L.I., N.Y., Mar. 2.

Professional Turf and Landscape Conference, sixth annual, Ramada Inn, North Haven, Conn., Mar. 3.

Canadian Golf Superintendents Association, 27th Annual turfgrass show, Inn-on-the-Park, Toronto, Ontario, Mar. 8-10.

Northeastern Forest Pest Council, winter meeting, Copley Plaza Hotel, Boston, Mass., Mar. 10-11.

Pennsylvania Parks and Recreation Society, 29th annual meeting, Seven Springs Mountain Resort, Champion, Pa., Mar. 14-17.

Western Society of Weed Science, annual meeting, Sheraton-Portland Hotel, Portland, Oregon, Mar. 16-18.

American Society of Golf Course Architects, 30th annual meeting, Del Monte Lodge, Monterey, California, Mar. 21-26.

Arizona Turfgrass Council, 2nd annual Turfgrass Materials and Equipment Show, Veterans Memorial Coliseum, Phoenix, Arizona, April 14.

Southern California Turf and Landscape Institute, annual meeting, Royal Inn, Anaheim, California, Apr. 28-29.

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Toro Says Earnings Fell, But Market Share Boosted

Although Toro Co., earnings for the fourth quarter and fiscal 1975 fell short of fiscal 1974's records, the recession has helped the company boost its market share and it expects higher profit in fiscal 1976.

For all fiscal 1975, sales of the Minneapolis company were up about 15 percent from fiscal 1974's record $125 million, David T. McLaughlin, president, said. He added, however, that the gain was entirely due to inflation. In fiscal 1974, Toro's earnings rose 15 percent ot $5.3 million, or $2.15 a share, on an 18 percent sales gain.

Study Shows $7,244 A Year Is Average Golf Hole Cost

It cost $467 more last year to maintain a golf hole than it did the year before, according to a national study just completed by Harris, Kerr, Forster & Co. The company surveyed maintenance costs at 100 clubs across the United States.

In a breakdown of the $7,244 that each green cost, the survey showed payroll and related costs amounted to $4,398 and all other expenses $2,306. This amounts to an overall cost of $130,392 for an 18-hole facility. For 1973, a similar study showed per hole costs of $6,-777.

International Turf Report Published With 70 Papers

The second research conference of the International Turfgrass Society held in 1973 featured more than 80 presentations concerned with turfgrass culture and use throughout the world.

The bulk of these presentations are now available in "Proceedings of the Second International Turfgrass Research Conference," published recently by the American Society of Agronomy and the Crop Science Society of America. The book is available for $17 from the American Society of Agronomy, 677 S. Segoe Rd., Madison, Wis. 53711.

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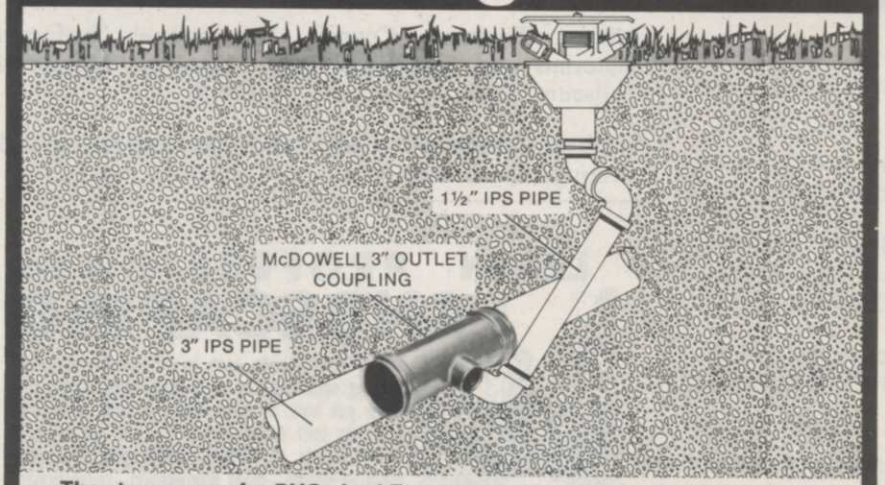

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(This renewal notice is a requirement of our national auditing service to verify that you are a member of the industry and that you wish to receive the magazine.)

Bent Greens, Battery-Power Mowers Early In Chicago

The first power mower on a golf course was used at Chicago Golf Club in 1899. It was powered by electric batteries. Dave Foulis recalled the start of power mowing in recollections he wrote in 1941 and reprinted recently in the newsletter of the Midwest Golf Course Superintendents Association.

Dave had come to Chicago in 1896 to assist his brother Jim as progreenkeeper. Jim had arrived in 1895. Jim played in the first U.S. Open at Newport Golf Club, Rhode Island in 1895. He tied for third at 176 with S. W. Smith, a Toronto amateur. Jim won the second Open in 1896 at Shinnecock Hills Golf Club with 152.

Dave also recalled that Charles Blair MacDonald, the first USGA national amateur champion and architect of the Chicago Golf Club course, the nation's first 18-hole course, had the fairways sown in 1897 with three tons of Kentucky bluegrass and one ton of redtop. That same year McDonald also imported bent seed from Holland for the greens.

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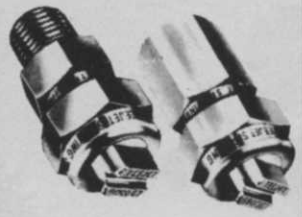

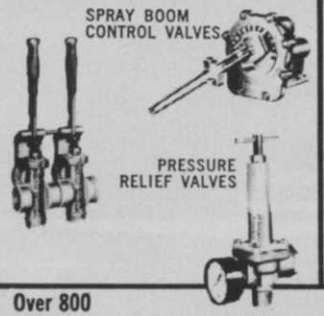

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People on the Move

Dr. Carl M. Berntsen, appointed director of Timber Management Research for the Forest Service, U. S. Department of Agriculture. Berntsen was formerly deputy director of the North Central Forest Experiment station, with headquarters at St. Paul, Minn. He succeeds **Dr. Warren T. Doolittle,** who was recently appointed Associate Deputy Chief for Research.

* * *

Margaret Herbst, named executive secretary for the New York State Nurserymen's Association. Herbst is also executive secretary for the New York State Arborist Assoc., New York State Association of Cemeteries, and the Long Island Nurserymen's Assoc.

* * *

Ralph W. Spaulding, elected president of the Lawn & Garden Distributors Association for 1975-76. The association is composed of 175 distributors and manufacturers of seeds, chemicals, fertilizer, soil and accessories for the lawn and garden market nationwide.

* * *

Richard Gray, elected president of the Central Plains Turfgrass Foundation. Gray is superintendent of Crestview Country Club, Wichita, Kansas. **Herman Siler,** of Siler's Shade Acres Golf Course, Springfield, Mo., elected vice president, and **Ray A. Keen,** KSU professor of horticulture, reappointed secretary and treasurer. Newly elected foundation directors are **Ross B. May,** Wichita Parks; **Cary L. Tegtmeyer,** Kansas City, Mo., parks and recreation; **Blue Eastham,** El Dorado Country Club; and **Gary C. Panter,** Leawood South Golf Course.

* * *

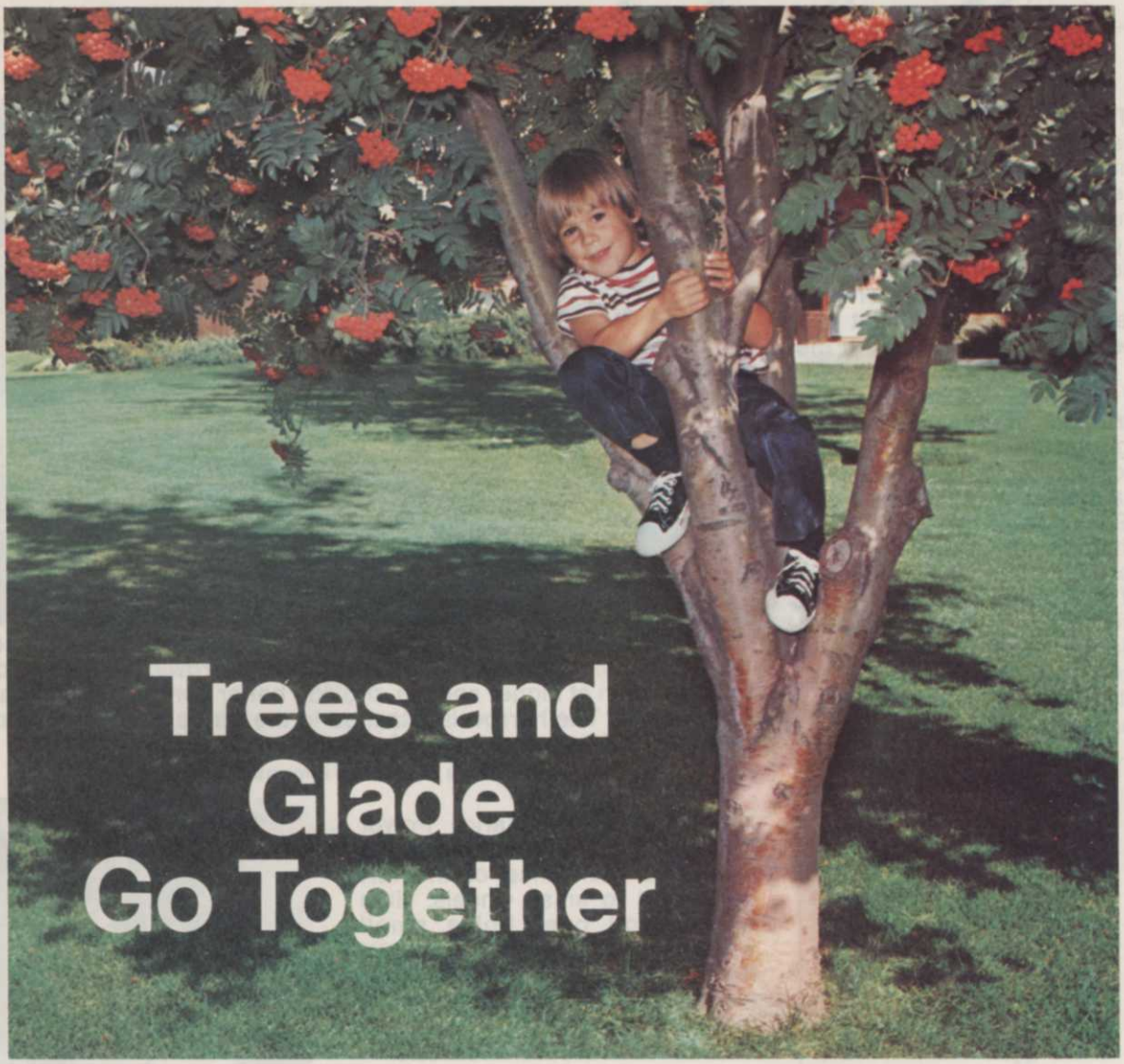
Edmond S. Bauer, elected an executive vice president and a member of the board of directors of Monsanto Company. Bauer will have responsibility for Monsanto Agricultural Products Company and Monsanto Commercial Products Company.

* * *

David G. Percy, appointed advertising manager of agricultural and outdoor power products for International Harvester. This new assignment combines all of the company's Agricultural Equipment Division's products in a single advertising group. Also, **Raul N. Gutierrez,** named media and traffic manager.

* * *

Harvey F. Polster, named manager of product planning for the Simplicity Manufacturing Co. Division, Allis-Chalmers Corp. **Paul A. Brow,** named manager of Lawn and Garden Equipment for the Agricultural Sales and Marketing Division. In related moves, **James Retert,** appointed the manager of merchandising Lawn and Garden Equipment. Also, **Jacques F. Trevillyan,** appointed president, Simplicity Manufacturing Company.



A new natural team, Glade Kentucky bluegrass and trees! Glade performs well in moderate shade, especially when mixed with fine fescues. A selection from Rutgers University (tested as P-29), Glade is an improved, low-growing, medium to dark green grass with fine leaf texture and thick, rapid-growing rhizome and root system. Glade has good resistance to important turfgrass diseases including powdery mildew.

Like boys and trees, Glade and shade go together. Mixed with other elite bluegrasses and fine fescues in moderate shade, Glade is a natural.

Get new Glade at local wholesale seed distributors.

Another fine product of Jacklin Seed Company

Glade

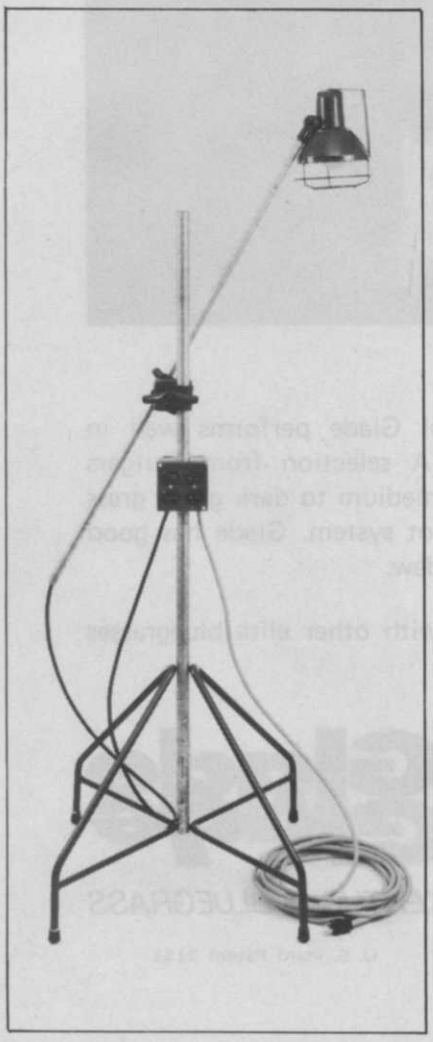
KENTUCKY BLUEGRASS

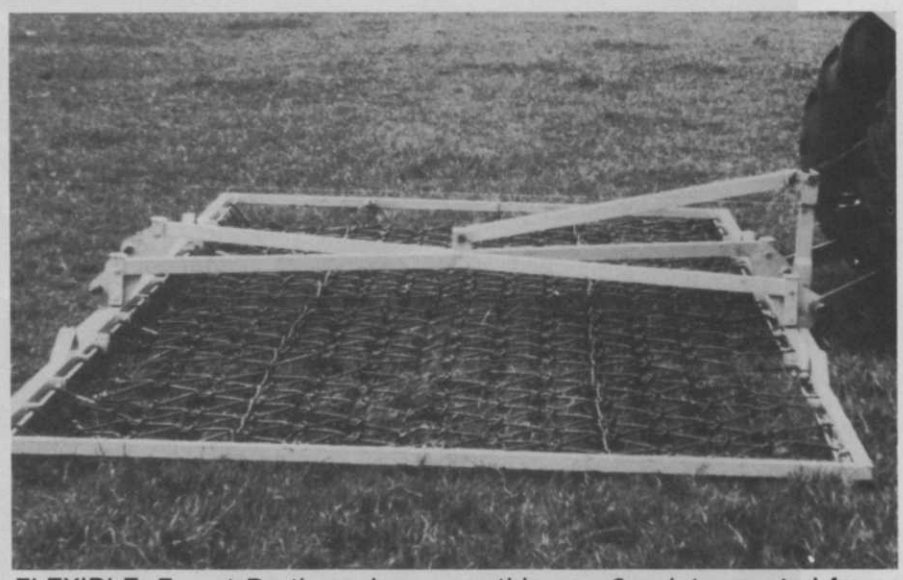
U. S. Plant Patent 3151

New Products

LIGHT: Here's a new portable industrial light "made by mechanics for mechanics" says Rimco Industries. According to the manufacturer, the unit features: infinite light position adjustment; three grounded 110-volt outlets on the stand to reduce the need for multiple extension cords; outlet box can be adjusted vertically on the stand and contains a switch controlling the light fixture. Constructed of heavy materials throughout, the unit uses UL approved components. These include a molded ground plug and a 25 ft. SJTW-A orange cord. A 150-watt heavy duty water resistant and protected incandescent fixture if standard, with fluorescent or other type lighting on request. Standard model specifications are: height: 60 in.; reach: 60 in.; weight: 27 lbs.; Cord: 25 ft.

Circle 702 on free information card.



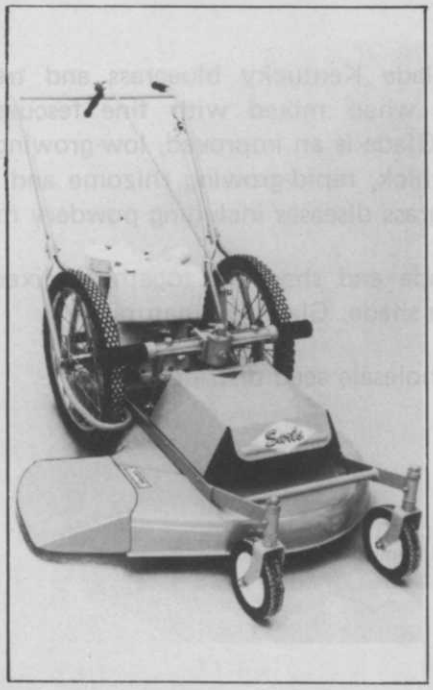


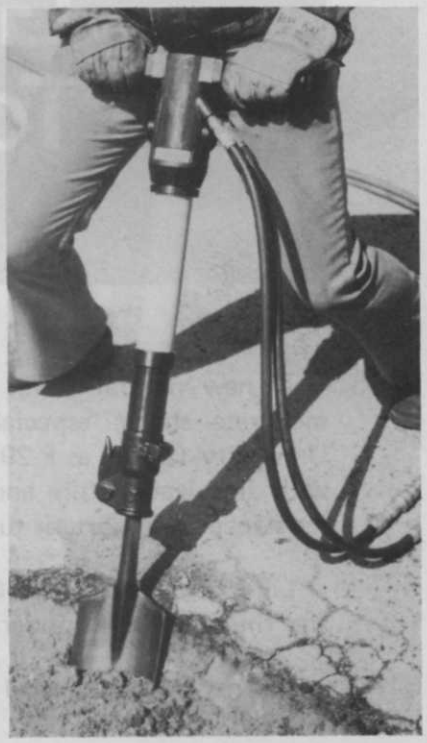
FLEXIBLE: Fuerst Brothers, Inc., says this new 3-point mounted frame fits either their Hercules or Peerless model harrows. It is also said to permit operation at higher speeds, provide better control and increase ease of transport. The harrow is attached to the frame so that full flexibility is retained and frame cannot ride on the ground.

Circle 701 on free information card.

HIGH WHEELS: Sarlo Power Mowers, Inc., new high wheelers lower the resistance of the turf compared to small wheels. High wheels roll over holes small wheels fall into, says the manufacturer. Also they permit larger engine sizes without reduction of maneuverability.

Circle 703 on free information card.





CLAY SPADE: This unit adapts to any tractor, portable hydraulic power source or other mobile equipment, claims Robinson Industries. using optional tools, the unit becomes a light duty breaker, ground rod driver, a tamper and a chipper.

Circle 704 on free information card.

"The WEED EATER saves the university close to $14,000 a year."

Herbert Collier
Assistant Director of the Physical Plant
Louisiana State University

"The WEED EATER and one man can do the work of four men."

Frank Jasper
General Superintendent of Maintenance
Harris County (Houston), Texas

It cuts grass with fishing line.T.M.

Introducing the New WEED EATER®

LIGHTWEIGHT WEEDY®

WEEDY 650 is four tools in one. It trims. It mows. It edges. It sweeps. It does the job in a fraction of the time needed by so-called conventional trimmers because there's no slowing down for hard-to-get-to places. And WEEDY is safe to use since there are no blades.

WEEDY CAN SAVE TIME AND MONEY FOR YOU.

WEED EATER®

WEED EATERS, INC. 5146 Richmond Avenue - Houston, Texas 77027 - (713) - 622-8720

TRACTOR: This is Gravely's new Model 524, 8 HP, 4-speed, manual start tractor. The unit is powered by a Kohler K181, air cooled engine. The engine is designed to operate efficiently under all conditions and to deliver full-rated horsepower. All models feature Gravely all-gear and steel shaft drive from the engine to the attachment.

Circle 710 on free information card.

TRENCHER: Vermeer Manufacturing Co. has a new heavy-duty, rubber-tired trencher. According to the company, the M-470 offers a choice of two engines — both liquid-cooled power in the 192 Ford gas or 254 Ford diesel engine. The unit retains all of the heavy-duty construction and handling features of the M-470, including 15,000 lb. capacity, full floating Rockwell axles, hydraulic four-wheel brakes, power articulated steering and a heavy-duty electrically welded frame, says the manufacturer.

Circle 711 on free information card.

MASK: This respirator mask from Mine Safety Appliances Co., features a Comfo II facepiece with a soft inturned lip construction for an efficient face seal, the company claims. Twin disposable combination chemical cartridges and particulate filters located on each side of the facepiece purify air breathed by the user. The pesticide mask is listed by the U.S. Department of Agriculture for protection against pesticides.

Circle 712 on free information card.

POWER PLANT: Allis-Chalmers has four new revolving field alternators, producing power in a stationary element which is conducted to outlets through solid connections. These units are used to provide electricity at the jobsite.

Circle 713 on free information card.

Classifieds

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: All classifications 50¢ per word. Box number, $1. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment.

EQUIPMENT FOR SALE

FOR SALE 1 used 1970 Hi-Ranger mounted on International truck. Equipment: Chip box hydraulic pruners and saw. Write or call Bill Sowers, Tree Service and Nursery, 409 N. Main St., Sycamore, Ohio 44882. Phone 419 927-9562.

USED EQUIPMENT

FOR SALE: 2 used aerial baskets — 50 ft. working height, 2 Asplundh brush chippers. Bean sprayer, 35 G.P.M. Vermeer stump cutter 1560. Parkway Tree Service, Milwaukee, Wisconsin. Phone 414 257-1555.

VERMEER TS-66T.tree spade mounted on a Michigan 125 III A rubber tire loader, converts back to conventional 4 yard loader in minutes. On large scale tree moving projects or balling and burlaping trees, this unit will outwork the truck mounted model 421, four to one, $48,500. Phone 419 424-0896.

FOR SALE: several 1970, 1971, 1972 fifty foot Skyworkers with fiberglass upper booms and insolators, utility body and hydraulic tool system. For further information call or write to: Aerial Lift Repair, Inc., 571 Plains Rd., Milford, Conn. 06460. Phone 878-5239.

57' UNIC HYDRAULIC CRANE model U-500E mounted on 1972 Ford C700 with 14' steel contractors bed and tool box, 11,000 miles. $12,500, very good condition. Gustin Gardens Tree Service, Inc., 19425 Gaithersburg-Laytonsville Rd., Gaithersburg, Md. 20760.

1963 CHEVROLET with Asplundh bucket, 47' working height, fiberglass upper boom, and insert, Worthington air compressor, Braden 20,000 lb. winch. $7,000.00. 1961 Chevrolet, Powers sky-master, 50' working height, air compressor. $5000.00 Livonia, N.Y. 1-716-346-3981 (evenings).

TREE SPADE 1972 Vermeer TS44-T, on 1972 Ford 1 ton, 360 engine, 4 speed. Both very good condition. Phone 303 597-6314, Don Ames, 4975 Templeton Gap Rd., Colorado Springs, Colo. 80918.

BROUWER SOD HARVESTER. Complete with tractor, roof and counter. Used only one season. Like new. Brouwer Turf Equipment, Phone 416 476-4311.

1974 30" LOCKE mower, like new, $550.00. Call Collect 516 661-8948 Babylon, New York.

SEEDS

SOD QUALITY Seeds Merion, Fylking, Delta, Park, Newport, Nugget, Adelphi, Cheri, Glade and Baron bluegrasses also fine fescues. Manhattan rye grass. Custom mixing available. Michigan State Seed Co., Grand Ledge, Michigan 48837. Phone 517 627-2164.

HELP WANTED
LANDSCAPE DESIGNER/SALESMAN

An established landscape company, specializing in residential, commercial and industrial work, is seeking an ambitious landscape architect or designer/salesman. Candidate must have supervisory and sales experience, with a knowledge of plant material, and be able to manage all landscape operations. Salary according to experience. Immediate opening. Please indicate education, experience and salary desired in a reply to:

BUCKEYE STATE LANDSCAPE, INC.
4616 South Ave. Toledo, Ohio 43615 (419/536-4564)

National Firm's Expansion Plan Requires

Graduates in ornamental horticulture, arboriculture, or related disciplines. Minimum 3 years experience. Sales/marketing background in "Green" industry. Willing to relocate. Income related to qualifications. Send resume to Box 145, Weeds, Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

PARKS OPERATIONS OFFICER Responsible for planning, organizing and directing the construction, equipment maintenance and supply, and forestry activities for the St. Louis County Department of Parks and Recreation which includes 53 parks totalling over 7500 acres. Applicants should have considerable knowledge of park grounds and facilities design and construction, and equipment maintenance and repair. This knowledge can be demonstrated by several years of progressively responsible experience in park management and operations including some experience in an administrative capacity supplemented by a Bachelor's Degree in Civil Engineering, Landscape Architecture, Park Management or Forestry, or any equivalent combination of training and experience. Salary range $15,221 — $19,439 annually. Apply to: St. Louis County Government, Division of Personnel, 7900 Forsyth, 7th Fl., Clayton, Mo. 63105. Phone (314) 889-2429. Equal Opportunity Employer.

DISTRICT MANAGERS for growth areas in Florida. Duties include supervising all aspects (training, sales production, quality control and administration) of our established turf and household pest control business in that district. This is an excellent opportunity for a man with training in entomology/horticulture or related fields and with a moderate-to-heavy business background. A successfully proven training program is available. We are a growth company with ambitious but realistic goals, presently grossing over $1,500,000 annually. Generous compensation and benefits for qualified man. Send resume to: Ronald W. Colins, President, R. W. Colins, Inc., P.O. Box 2477, Satellite Beach, Florida 32937.

SUPERINTENDENT — Large memorial park cemetery in north central states has need of a maintenance and development supervisor. Degree in related field, or good education and five years of practical experience will be considered. Salary range $15,000-$20,000. All inquiries strictly confidential. Send resume, include education, experience, references. Box 144, Weeds, Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

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BUSINESS FOR SALE

SMALL, PROFITABLE, well established Landscaping business. Equipment and accounts. No real property but potential expansion. Contact A. Leon Bush, 1517 East 3rd St., Pueblo, Colorado 81001.

WANTED TO BUY

USED OR NEW walk behind sprig planter, contact City of Coral Springs Purchasing Department, 9429 Sample Road, Coral Springs, Florida 33065. AC 305-752-3410 Ext. 31.

WANTED: Vermeer TS-44A tree spade. Underwood Tree Expert Co., Avon, Illinois. Phone Robert Underwood 309 465-3019 evenings.

WANTED, good tree spraying unit. P.O. Box 14198, Spokane, Wash. 99206. Phone 509 928-0410.

Trimmings

Chemical studies conducted at Wye College, London University, are leading researchers to discover many of nature's own defensive chemicals. The tests were conducted by scientists who felt that many plant disease micro-organisms are developing resistance to commercial fungicides. Resistance, scientists say, can be caused by genetic change in the fungal cell which originate as mutations. At the Agricultural Research Council's unit at Wye, researchers are working on the premise that although growing plants are always exposed to a wide range of fungi, they are completely resistant to most of them. Many times resistance can be related to morphological characteristics. There is, however, evidence that natural disease resistance may be associated with protective chemicals within the plant cells.

One development came from scientists asking a simple question: 'Why should roots growing in the soil always remain healthy?' After all, a living root is surrounded by millions of bacteria and fungi that inhabit the soil yet it is not attacked by them. If, however, the root were killed by dipping it into boiling water and then put back into the soil, the micro-organisms would soon destroy it. This led to a simple experiment in which pea and bean seedlings were grown with their roots in water. When the roots were extracted and examined, the antibiotics with antifungal properties were isolated and identified, indicating that the living root is able to survive in the hostile environment of the soil because it produces antibiotics to protect itself.

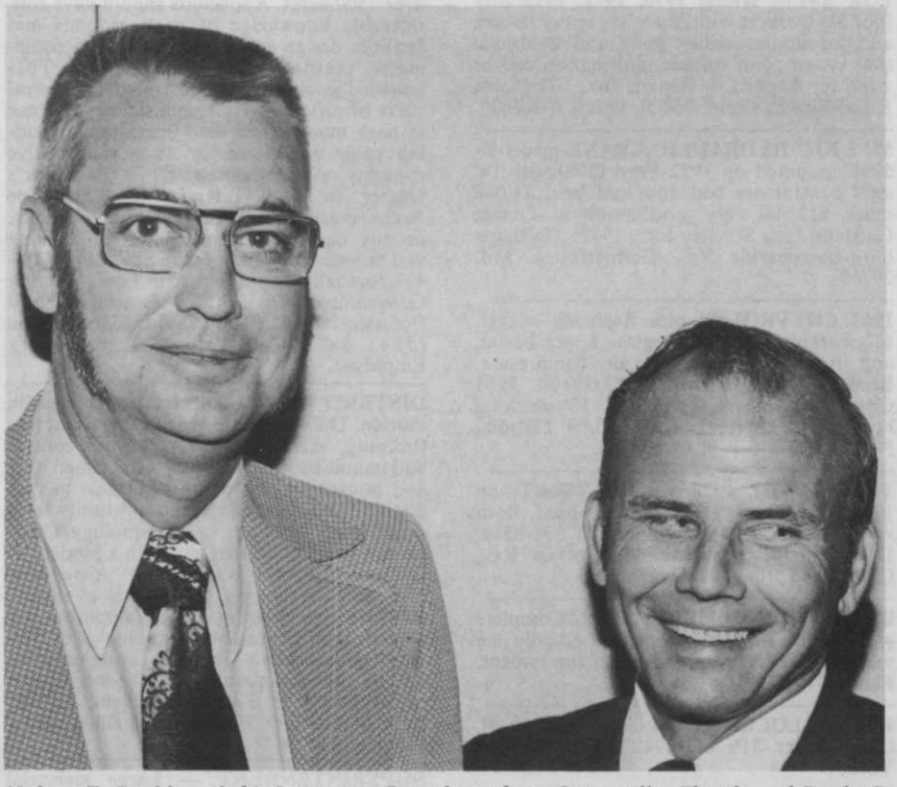
Philadelphia Association of Golf Course Superintendents celebrated their 50th anniversary recently. The event took place at the site of the original meeting; Whitemarsh Country Club. Honored guest for the evening was the only surviving member of the five founding fathers, Herbert F. Jewson and his wife Mary. The Greenskeepers Association of the Philadelphia Section held their first meeting on September 14, 1925.

University of Delaware's Dr. William H. Mitchell, turf specialist, has one of the largest test plots we heard of — a nine hole three par playback course. The campus course looks like any conventional course, but beneath the neatly-trimmed turf, the ground is a maze of wires, pipes, tubes, drains, and soil types. Each green consists of eight separate soil mixtures, varying from sand and peat moss to the light sandy soils of lower Delaware and black soils high in organic matter.

Some of Mitchell's objectives are to test out materials which could lower the cost of golf course construction, study subsurface irrigation methods which require less water and are less disruptive to play, identify superior kinds of grasses which tolerate divot removal and resist compaction, and develop ways to reduce maintenance costs. His underground system of drains on this course makes it possible to find out which chemical materials are leaching and which soil types hold the herbicides and fungicides the best.

What will the golf course of the future look like? The American Society of Golf Course Architects predict generally shorter courses designed for versatile maintenance equipment and created for the average golfer. The long, monster courses which have been so prevalent will give way to shorter courses measuring anywhere from 5,000 to 6,600 yards. With less length to challenge brute strength, golfers will need to devote more concentration to accuracy and strategy.

Land availability is an obvious factor in the anticipated reduction of course acreage. Yet, in an architects survey, the most frequently cited reason for shorter courses was the average golfers' ability. The soaring costs of building and maintaining a golf course further contribute to the shorter course outlook. Maintenance economy was cited by numerous architects.



Hubert E. Buckley, (left), Irrigation Consultant from Gainesville, Florida and Doyle C. Jones, Landscape Construction Supervisor, Walt Disney World, Orlando, were elected president and vice president respectively of the Florida Turfgrass Association. Lou F. Oxnevard, Riviera Country Club, not pictured, was elected secretary-treasurer. Also elected to the Board of Directors were: H. Anthony Kimball, The Deerwood Club; Lewis C. Dolan, Cypress Creek Golf Club; Clifford L. Woodliff, Lehigh Acres Development; Robert H. Enochs, International Minerals and Chemical Corp.; and Stanley F. Cruse, Pursley Grass Co.

The mower that beat our Commercial 60. Our new Jacobsen Commercial 72.

Bob Johnson of Illinois Lawn Equipment Company, Orland Park, Illinois, didn't think anything could outperform the Jacobsen Commercial 60.

Then he saw the new Commercial 72. It does everything the other mower does. But the Commercial 72 does it faster. Because it cuts a superwide 72-inch swath.

A heftier 19.8 horsepower engine gives the Commercial 72 all it needs to sail through rough turf. Or the fine-finish areas.

And all that power means the Commercial 72 can also mulch leaves. Or plow moderate amounts of snow with the optional blade.

But rugged as it is, this little brute handles easily. A low center of gravity gives built-in stability. And hydrostatic transmission means the operator simply pushes a pedal with his toe to go forward. Or with his heel to back up.

The operator won't waste time with frequent fueling stops either. The gas tank has a big 10-gallon capacity.

The good old reliable Commercial 60 is fast.

The good new reliable Commercial 72 is even faster.

All of us Jacobsen Distributors are ready now to show you how it gets more done in less time.

Your Jacobsen Distributors.

Before we sell it, we buy it.

For the name of the distributor near you write: Jacobsen Turf Distributor Directory, 1721 Packard Avenue, Racine, Wisconsin 53403.

Sometimes it's better to hear it from someone else...

"I use Baron for every acre of bluegrass I grow. Baron gives what you guys call in your advertising. . . a tight-fisted root system. It holds together. . .I can shake it like a rug."

Here's what Berkley Carter of Tuckahoe Turf Farms,* Slocum, R.I. has to say about

baron KENTUCKY BLUEGRASS

U.S. Dwarf Variety Plant Patent No. 3186

"Of all the bluegrasses, Baron is resistant to more diseases. I've had two different bluegrass fields side by side and Baron always shows more resistance. It holds up its color throughout the season with a minimum of water and fertilizer."

"When I need a herbicide, Baron can take the shocks better without streaks or setbacks. It is an aggressive grass needing only minimum maintenance practices."

"Baron comes up fast. . . that's important to me. I want to see fuzz in 7 days so that the soil is protected as soon as possible."

"It's hard enough getting the seedbed ready; I'm not going to spoil everything with a poor quality seed. I don't know why every sod grower doesn't use Baron."

"And your Jamestown Fescue is great too."

Jamestown is perfect for a bluegrass blend, particularly Baron. It has great eye appeal and when sod is needed for sun and shade areas Jamestown/Baron really go well together.

One more comment from Berkley. . . *"When you've got a good thing going – stick with it."*

There's not much more we can add except that Lofts Pedigreed Seed Company or any authorized distributor is nearby wherever you grow sod.

LOFTS

Exclusive North American Grower and Distributor:

Lofts Pedigreed Seed, Inc.

Bound Brook, N.J. 08805 / (201) 356-8700

*Tuckahoe Turf Farms, growers of 600 acres of cultivated sod, is one of the largest sod farms in New England.

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